



# pennsylvania

DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

## MEMO

**TO** Melinda Gross  
Chief, Compliance and Information Manager  
Division of Hazardous Waste Management

**FROM** Jeffrey R. Smith, P.G. *JRS*  
Licensed Professional Geologist  
Southwest Regional Office

**DATE** October 5, 2015

**RE** Kelly Run Landfill  
Compliance Monitoring Evaluation 2015  
Forward Township  
Allegheny County  
I.D. No. PAD004810222

RECEIVED

OCT 07 2015

DIV OF HAZARDOUS  
WASTE MANAGEMENT



### MESSAGE:

1. The inspection date for this facility was September 17, 2015.
2. Groundwater and surface water locations are sampled on a quarterly basis.
3. Groundwater and surface water data from the facility are included with this submission.
4. The former hazardous waste disposal area has been synthetically capped.
5. There are no further hazardous waste disposal activities occurring at the facility.
6. Municipal waste disposal activities occur on the permitted portion of the landfill.

Cc: Regional  
Chron  
J. Smith  
D. McDaniel  
D. Swarm

Secretary

## RCRAInfo CM&amp;E EVALUATION – VIOLATION FORM

<b>*EPA ID Number</b>		PAD 00481022		<b>EIN</b>			
<b>Handler Name</b>		Waste Management, Kelly Run Landfill, INC					
<b>Street</b>		1500 Hayden Blvd					
<b>City</b>		Elizabeth		<b>State</b>		PA	
				<b>Zip Code</b>		15037	
<b>Actual Generator Status</b> <i>Check only if different from Notified Status:</i>				LQG <input type="checkbox"/> SQG <input type="checkbox"/> CESQG <input type="checkbox"/> Closed <input checked="" type="checkbox"/> Non-Handler <input type="checkbox"/>			
<b>Universe Change Required?</b> <i>(Generator Status Change Required)</i>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> If YES, complete the Universe Change Section (on reverse side of this form).					
<b>RCRA Non-Notifier?</b>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> If YES, complete the Handler Section (on reverse side of this form).					
<b>Other Facility Information Changes?</b>		YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> If YES, complete the Handler Section (on reverse side of this form).					
<b>*EVALUATION</b>		<input checked="" type="checkbox"/> Add <input type="checkbox"/> Update <input type="checkbox"/> Delete		<b>You must provide an Evaluation Identifier (also known as the Sequence Number).</b>			
<b>*Evaluation Identifier</b>	<b>*Type</b>	<b>*Evaluation Start Date (mm/dd/yyyy)</b>		<b>*Agency</b>	<b>Responsible Person</b>	<b>Suborganization</b>	
	CME	09/17/2015		S			
<b>Day Zero (mm/dd/yyyy):</b> You need to specify Day Zero for all evaluation types except CDI, CSE, FUI, SNN, and SNN, otherwise it defaults to Evaluation Start Date. For CDI, CSE, FUI, and SNN evaluations, you must select a previous CEI Start Date for the Day Zero. SNN evaluation type does not require a Day Zero.				<b>Reclassified SV Date:</b> Only applicable for SNN evaluation type as appropriate.			
<b>Notes:</b>							
<b>Evaluation Indicator Field (Check all that apply)</b> <input type="checkbox"/> Citizen Complaint <input type="checkbox"/> Multimedia Inspection <input checked="" type="checkbox"/> Sampling <input type="checkbox"/> Not Subtitle C							
<b>Focused Coverage Areas (Use Only for Evaluation Type FCI)</b> <i>Regulation-Specific FCI</i> BIF <input type="checkbox"/> CCI <input type="checkbox"/> CFI <input type="checkbox"/> INC <input type="checkbox"/> LDR <input type="checkbox"/> PTB <input type="checkbox"/> PTX <input type="checkbox"/> THI <input type="checkbox"/> UIC <input type="checkbox"/> UOI <input type="checkbox"/> UWR <input type="checkbox"/> OTHER (specify): _____ <i>Routine/Standardized FCI</i> CAR <input type="checkbox"/> CPC <input type="checkbox"/> DOS <input type="checkbox"/> EMR <input type="checkbox"/> IEI <input type="checkbox"/> ISI <input type="checkbox"/> RTI <input type="checkbox"/>							
<b>Does this Evaluation Add/Update/Delete a Violation?</b>				YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		<b>If Yes, fill in the Violations Section(s) on page 2 of this form.</b>	
<b>Does this Evaluation link to a Commitment?</b>				YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		<b>If Yes, please use the RCRAInfo 3007 Information Requests and Commitments Form.</b>	
<b>Does this Evaluation link to a 3007 Request?</b>				YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		<b>If Yes, please use the RCRAInfo 3007 Information Requests and Commitments Form.</b>	
<b>OUTSTANDING VIOLATIONS COVERED BY ABOVE EVALUATION?</b> YES <input type="checkbox"/> NO <input type="checkbox"/> <b>If Yes, fill in information below.</b>							
<b>*Seq. No.</b>	<b>*Violation Type</b>	<b>*Agency</b>	<b>*Regulation Citation (Type + Citation)</b> (ex. FR 262.1)			<b>*Date Determined (mm/dd/yyyy)</b>	

\*Required Fields

EPA ID Number				Handler Name			
<del>PA000000003</del> <b>PAD 00481022</b>				<del>General Electric Lancaster</del> <b>Waste Management Inc.</b>			
<b>VIOLATIONS SECTION</b>							
(Additional Violations can be added/updated/deleted using the RCRAInfo CM&E Additional Violations Form)							
VIOLATION <input type="checkbox"/> Add <input type="checkbox"/> Update <input type="checkbox"/> Delete						Link to Above Evaluation <input type="checkbox"/>	
Seq. No	Violation Type	Agency	Determined Date (mm/dd/yyyy)	Return to Compliance (RTC) Qualifier	Actual RTC Date (mm/dd/yyyy)		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<small>A RTC Qualifier is required if entering an Actual RTC Date.</small>		
Notes: _____							
LINK CITATIONS TO ABOVE VIOLATION?				YES <input type="checkbox"/>	NO <input type="checkbox"/>	If Yes, fill in information below	
Citation Type		Citation		Citation Type		Citation	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
VIOLATION <input type="checkbox"/> Add <input type="checkbox"/> Update <input type="checkbox"/> Delete						Link to Above Evaluation <input type="checkbox"/>	
Seq. No	Violation Type	Agency	Determined Date (mm/dd/yyyy)	Return to Compliance (RTC) Qualifier	Actual RTC Date (mm/dd/yyyy)		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<small>A RTC Qualifier is required if entering an Actual RTC Date.</small>		
Notes: _____							
LINK CITATIONS TO ABOVE VIOLATION?				YES <input type="checkbox"/>	NO <input type="checkbox"/>	If Yes, fill in information below	
Citation Type		Citation		Citation Type		Citation	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>HANDLER SECTION (Fill out if RCRA Non-Notifier)</b>							
Handler Name		Contact					
Street							
City		State	Zip Code				
County							
<b>UNIVERSE CHANGE SECTION (Fill out if Universe Change Required)</b>							
i. Indicate the Facility's current Universe(s):							
ii. Indicate the new RCRAInfo Generator Universe: <small>Note: All TSD activity changes must be handled by the IOR and cannot be made using this form.</small>				LQG <input type="checkbox"/> SQG <input type="checkbox"/> CEG <input type="checkbox"/> Non-Handler <input type="checkbox"/> Closed <input type="checkbox"/>			
iii. Indicate the new transporter status: <small>(Only fill out if the facility requires a transporter status change)</small>			Transporter <input type="checkbox"/> <small>If the transporter box is checked, you must check at least one mode of transportation below:</small> <input type="checkbox"/> Air <input type="checkbox"/> Water <input type="checkbox"/> Rail <input type="checkbox"/> Other <input type="checkbox"/> Highway		Non-Transporter <input type="checkbox"/> Check non-transporter if the facility is currently listed in RCRAInfo as a transporter AND no longer transports hazardous waste.		

\*Required Fields

## APPENDIX A

# COMPREHENSIVE GROUND-WATER MONITORING EVALUATION WORKSHEET

The following worksheets have been designed to assist the enforcement officer/technical reviewer in evaluating the ground-water monitoring system an owner/operator uses to collect and analyze samples of ground water. The focus of the worksheets is technical adequacy as it relates to obtaining and analyzing representative samples of ground water. The basis of the worksheets is the final RCRA Ground Water Monitoring Technical Enforcement Guidance Document which describes in detail the aspects of ground-water monitoring which EPA deems essential to meet the goals of RCRA. Appendix A is not a regulatory checklist. Specific technical deficiencies in the monitoring system can, however, be related to the regulations as illustrated in Figure 4.3 taken from the RCRA Ground-Water Monitoring Compliance Order Guide (COG) (included at the end of the appendix). The enforcement officer, in developing an enforcement order, should relate the technical assessment from the worksheets to the regulations using Figure 4.3 from the COG as a guide.

Comprehensive Ground-Water Monitoring Evaluation	Y/N
<b>I. Office Evaluation Technical Evaluation of the Design of the Ground-Water Monitoring System</b>	
<b>A. Review of Relevant Documents</b>	
1. What documents were obtained prior to conducting the inspection:	
a. RCRA Part A permit application?	Y
b. RCRA Part B permit application?	Y
c. Correspondence between the owner/operator and appropriate agencies or citizen's groups?	Y
d. Previously conducted facility inspection reports?	Y
e. Facility's contractor reports?	Y
f. Regional hydrogeologic, geologic, or soil reports?	Y
g. The facility's Sampling and Analysis Plan?	Y
h. Ground-water Assessment Program Outline (or Plan, if the facility is in assessment monitoring)?	Y
i. Other (specify) _____	Y



	Y/N
<b>B. Evaluation of the Owner/Operator's Hydrogeologic Assessment</b>	
1. Did the owner/operator use the following direct techniques in the hydrogeologic assessment:	Y
a. Logs of the soil borings/rock corings (documented by a professional geologist, soil scientist, or geotechnical engineer)?	Y
b. Materials tests (e.g., grain size analyses, standard penetration tests, etc.)?	Y
c. Piezometer installation for water level measurements at different depths?	Y
d. Slug tests?	Y
e. Pump tests?	Y
f. Geochemical analyses of soil samples?	Y
g. Other (specify) (e.g., hydrochemical diagrams and wash analysis)	N
2. Did the owner/operator use the following indirect technique to supplement direct techniques data:	
a. Geophysical well logs?	N
b. Tracer studies?	N
c. Resistivity and/or electromagnetic conductance?	N
d. Seismic Survey?	N
e. Hydraulic conductivity measurements of cores?	N
f. Aerial photography?	N
g. Ground penetrating radar?	N
h. Other (specify)	N
3. Did the owner/operator document and present the raw data from the site hydrogeologic assessment?	N
4. Did the owner/operator document methods (criteria) used to correlate and analyze the information?	N
5. The owner/operator prepare the following:	
a. Narrative description of geology?	Y
b. Geologic cross sections?	Y
c. Geologic and soil maps?	Y
d. Boring/coring logs?	Y
e. Structure contour maps of the differing water bearing zones and confining layer?	Y
f. Narrative description and calculation of ground-water flows?	Y

	Y/N
g. Water table/potentiometric map?	
h. Hydrologic cross sections?	
6. Did the owner/operator obtain a regional map of the area and delineate the facility?	
If yes, does this map illustrate:	
a. Surficial geology features?	
b. Streams, rivers, lakes, or wetlands near the facility?	
c. Discharging or recharging wells near the facility?	
7. Did the owner/operator obtain a regional hydrogeologic map?	
If yes, does this hydrogeologic map indicate:	
a. Major areas of recharge/discharge?	
b. Regional ground-water flow direction?	
c. Potentiometric contours which are consistent with observed water level elevations?	
8. Did the owner/operator prepare a facility site map?	
If yes, does the site map show:	
a. Regulated units of the facility (e.g., landfill areas, impoundments)?	
b. Any seeps, springs, streams, ponds, or wetlands?	
c. Location of monitoring wells, soil borings, or test pits?	
d. How many regulated units does the facility have? _____	
If more than one regulated unit then,	
• Does the waste management area encompass all regulated units?	
• Is a waste management area delineated for each regulated unit?	
<b>C. Characterization of Subsurface Geology of Site</b>	
1. Soil boring/test pit program:	
a. Were the soil borings/test pits performed under the supervision of a qualified professional?	
b. Did the owner/operator provide documentation for selecting the spacing for borings?	
c. Were the borings drilled to the depth of the first confining unit below the uppermost zone of saturation or ten feet into bedrock?	
d. Indicate the method(s) of drilling:	

		Y/N
Auger (hollow or solid stem)	<u>✓</u>	
Mud rotary	<u>N</u>	
Reverse rotary	<u>N</u>	
Cable tool	<u>N</u>	
Jetting	<u>N</u>	
Other (specify) _____		
e. Were continuous sample corings taken?		
f. How were the samples obtained (checked method[s])		
• Split spoon	<u>✓</u>	
• Shelby tube, or similar	<u>N</u>	
• Rock coring	<u>N</u>	
• Ditch sampling	<u>N</u>	
• Other (explain) _____		
g. Were the continuous sample corings logged by a qualified professional in geology?		
h. Does the field boring log include the following information:		
• Hole name/number?		<u>✓</u>
• Date started and finished?		<u>✓</u>
• Driller's name?		<u>✓</u>
• Hole location (i.e., map and elevation)?		<u>✓</u>
• Drill rig type and bit/auger size?		<u>✓</u>
• Gross petrography (e.g., rock type) of each geologic unit?		<u>✓</u>
• Gross mineralogy of each geologic unit?		<u>✓</u>
• Gross structural interpretation of each geologic unit and structural features (e.g., fractures, gouge material, solution channels, buried streams or valleys, identification of depositional material)?		<u>✓</u>
• Development of soil zones and vertical extent and description of soil type?		<u>✓</u>
• Depth of water bearing unit(s) and vertical extent of each?		<u>✓</u>
• Depth and reason for termination of borehole?		<u>✓</u>
• Depth and location of any contaminant encountered in borehole?		<u>✓</u>
• Sample location/number?		<u>✓</u>
• Percent sample recovery?		<u>✓</u>
• Narrative descriptions of:		<u>✓</u>
—Geologic observations?		<u>✓</u>
—Drilling observations?		<u>✓</u>
i. Were the following analytical tests performed on the core samples:		
• Mineralogy (e.g., microscopic tests and x-ray diffraction)?		<u>✓</u>
• Petrographic analysis:		<u>✓</u>
—degree of crystallinity and cementation of matrix?		<u>✓</u>
—degree of sorting, size fraction (i.e., sieving), textural variations?		<u>✓</u>
—rock type(s)?		<u>✓</u>

	Y/N
—soil type?	N
—approximate bulk geochemistry?	N
—existence of microstructures that may effect or indicate fluid flow?	N
• Falling head tests?	N
• Static head tests?	N
• Settling measurements?	N
• Centrifuge tests?	N
• Column drawings?	N
<b>D. Verification of Subsurface Geological Data</b>	
1. Has the owner/operator used indirect geophysical methods to supplement geological conditions between borehole locations?	Y
2. Do the number of borings and analytical data indicate that the confining layer displays a low enough permeability to impede the migration of contaminants to any stratigraphically low water-bearing units?	Y
3. Is the confining layer laterally continuous across the entire site?	Y
4. Did the owner/operator consider the chemical compatibility of the site-specific waste types and the geologic materials of the confining layer?	Y
5. Did the geologic assessment address or provide means for resolution of any information gaps of geologic data?	Y
6. Do the laboratory data corroborate the field data for petrography?	Y
7. Do the laboratory data corroborate the field data for mineralogy and subsurface geochemistry?	Y
<b>E. Presentation of Geologic Data</b>	
1. Did the owner/operator present geologic cross sections of the site?	Y
2. Do cross sections:	
a. identify the types and characteristics of the geologic materials present?	Y
b. define the contact zones between different geologic materials?	Y
c. note the zones of high permeability or fracture?	Y
d. give detailed borehole information including:	Y

	Y/N
• location of borehole?	Y
• depth of termination?	Y
• location of screen (if applicable)?	Y
• depth of zone(s) of saturation?	Y
• backfill procedure?	Y
3. Did the owner/operator provide a topographic map which was constructed by a licensed surveyor?	Y
4. Does the topographic map provide:	
a. contours at a maximum interval of two-feet?	Y
b. locations and illustrations of man-made features (e.g., parking lots, factory buildings, drainage ditches, storm drain, pipelines, etc.)?	N
c. descriptions of nearby water bodies?	N
d. descriptions of off-site wells?	N
e. site boundaries?	N
f. individual RCRA units?	N
g. delineation of the waste management area(s)?	N
h. well and boring locations?	Y
5. Did the owner/operator provide an aerial photograph depicting the site and adjacent off-site features?	Y
6. Does the photograph clearly show surface water bodies, adjacent municipalities, and residences and are these clearly labelled?	Y
<b>F. Identification of Ground-Water Flowpaths</b>	
1. Ground-water flow direction	
a. Was the well casing height measured by a licensed surveyor to the nearest 0.01 feet?	Y
b. Were the well water level measurements taken within a 24 hour period?	Y
c. Were the well water level measurements taken to the nearest 0.01 feet?	Y
d. Were the well water levels allowed to stabilize after construction and development for a minimum of 24 hours prior to measurements?	Y
e. Was the water level information obtained from (check appropriate one):	
• multiple piezometers placed in single borehole?	<input checked="" type="checkbox"/>
• vertically nested piezometers in closely spaced separate	<input type="checkbox"/>
• boreholes?	<input type="checkbox"/>
• monitoring wells?	<input type="checkbox"/>



	Y/N
f. Did the owner/operator provide construction details for the piezometers?	
g. How were the static water levels measured (check method[s]).	
• Electric water sounder <u>  X  </u>	
• Wetted tape <u>      </u>	
• Air line <u>      </u>	
• Other (explain) <u>      </u>	
h. Was the well water level measured in wells with equivalent screened intervals at an equivalent depth below the saturated zone?	Y
i. Has the owner/operator provided a site water table (potentiometric) contour map?	Y
If yes,	
• Do the potentiometric contours appear logical and accurate based on topography and presented data? (Consult water level data)	Y
• Are ground-water flow-lines indicated?	Y
• Are static water levels shown?	Y
• Can hydraulic gradients be estimated?	Y
j. Did the owner/operator develop hydrologic cross sections of the vertical flow component across the site using measurements from all wells?	Y
k. Do the owner/operator's flow nets include:	
• piezometer locations?	Y
• depth of screening?	Y
• width of screening?	Y
• measurements of water levels from all wells and piezometers?	Y
2. Seasonal and temporal fluctuations in ground-water	
a. Do fluctuations in static water levels occur? If yes, are the fluctuations caused by any of the following:	
—Off-site well pumping	N
—Tidal processes or other intermittent natural variations (e.g., river stage, etc.)	N
—On-site well pumping	N
—Off-site, on-site construction or changing land use patterns	N
—Deep well injection	N
—Seasonal variations	N
—Other (specify) <u>      </u>	N
b. Has the owner/operator documented sources and patterns that contribute to or affect the ground-water patterns below the waste management?	N
c. Do water level fluctuations alter the general ground-water gradients and flow directions?	N
d. Based on water level data, do any head differentials occur that may indicate a vertical flow component in the saturated zone?	N

	Y/N
e. Did the owner/operator implement means for gauging long term effects on water movement that may result from on-site or off-site construction or changes in land-use patterns?	N
<b>3. Hydraulic conductivity</b>	
a. How were hydraulic conductivities of the subsurface materials determined?	
• Single-well tests (slug tests)?	
• Multiple-well tests (pump tests)	
• Other (specify) _____	
b. If single-well tests were conducted, was it done by:	
• Adding or removing a known volume of water?	
• Pressurizing well casing?	
c. If single well tests were conducted in a highly permeable formation, were pressure transducers and high-speed recording equipment used to record the rapidly changing water levels?	
d. Since single well tests only measure hydraulic conductivity in a limited area, were enough tests run to ensure a representative measure of conductivity in each hydrogeologic unit?	
e. Is the owner/operator's slug test data (if applicable) consistent with existing geologic information (e.g., boring logs)?	
f. Were other hydraulic conductivity properties determined?	
g. If yes, provide any of the following data, if available:	
• Transmissivity _____	
• Storage coefficient _____	
• Leakage _____	
• Permeability _____	
• Porosity _____	
• Specific capacity _____	
• Other (specify) _____	
<b>4. Identification of the uppermost aquifer</b>	
a. Has the extent of the uppermost saturated zone (aquifer) in the facility area been defined? If yes,	
• Are soil boring/test pit logs included?	
• Are geologic cross-sections included?	
b. Is there evidence of confining (competent, unfractured, continuous, and low permeability) layers beneath the site? If yes,	
• how was continuity demonstrated? _____	
c. What is hydraulic conductivity of the confining unit (if present)? CM/Sec How was it determined?	

	Y/N
<p>d. Does potential for other hydraulic communication exist (e.g., lateral discontinuity between geologic units, facies changes, fracture zones, cross cutting structures, or chemical corrosion/alteration of geologic units by leachage? If yes or no, what is the rationale?</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p><b>G. Office Evaluation of the Facility's Ground-Water Monitoring System—Monitoring Well Design and Construction:</b></p> <p>These questions should be answered for each different well design present at the facility.</p> <p><b>1. Drilling Methods</b></p> <p>a. What drilling method was used for the well?</p> <ul style="list-style-type: none"> <li>• Hollow-stem auger <input checked="" type="checkbox"/></li> <li>• Solid-stem auger <input checked="" type="checkbox"/></li> <li>• Mud rotary <input type="checkbox"/></li> <li>• Air rotary <input type="checkbox"/></li> <li>• Reverse rotary <input type="checkbox"/></li> <li>• Cable tool <input type="checkbox"/></li> <li>• Jetting <input type="checkbox"/></li> <li>• Air drill w/ casing hammer <input type="checkbox"/></li> <li>• Other (specify) _____</li> </ul>	
<p>b. Were any cutting fluids (including water) or additives used during drilling? If yes, specify:</p> <ul style="list-style-type: none"> <li>• Type of drilling fluid <u>H<sub>2</sub>O</u></li> <li>• Source of water used _____</li> <li>• Foam <u>N</u></li> <li>• Polymers <u>N</u></li> <li>• Other <u>N</u></li> </ul>	
<p>c. Was the cutting fluid, or additive, identified?</p>	<p><u>N</u></p>
<p>d. Was the drilling equipment steam-cleaned prior to drilling the well?</p> <ul style="list-style-type: none"> <li>• Other methods _____</li> </ul>	<p><u>N</u></p>
<p>e. Was compressed air used during drilling? If yes,</p> <ul style="list-style-type: none"> <li>• was the air filtered to remove oil?</li> </ul>	<p><u>N</u></p>
<p>f. Did the owner/operator document procedure for establishing the potentiometric surface? If yes,</p> <ul style="list-style-type: none"> <li>• how was the location established?</li> </ul>	<p><u>N</u></p>
<p>g. Formation samples</p>	<p><u>N</u></p>

	Y/N								
• Were formation samples collected initially during drilling?	✓								
• Were any cores taken continuous?	✓								
• If not, at what interval were samples taken?	✓								
• How were the samples obtained? <input checked="" type="checkbox"/> Split spoon <input type="checkbox"/> Shelby tube <input type="checkbox"/> Core drill <input type="checkbox"/> Other (specify)	✓								
• Identify if any physical and/or chemical tests were performed on the formation samples (specify) 4 _____ _____ _____									
<b>2. Monitoring Well Construction Materials</b>									
a. Identify construction materials (by number) and diameters (ID/OD)									
	<table border="1"> <thead> <tr> <th>Material</th> <th>Diameter</th> </tr> </thead> <tbody> <tr> <td>• Primary Casing</td> <td>4</td> </tr> <tr> <td>• Secondary or outside casing (double construction)</td> <td>4</td> </tr> <tr> <td>• Screen</td> <td>4</td> </tr> </tbody> </table>	Material	Diameter	• Primary Casing	4	• Secondary or outside casing (double construction)	4	• Screen	4
Material	Diameter								
• Primary Casing	4								
• Secondary or outside casing (double construction)	4								
• Screen	4								
b. How are the sections of casing and screen connected?									
• Pipe sections threaded	✓								
• Couplings (friction) with adhesive or solvent	✓								
• Couplings (friction) with retainer screws	✓								
• Other (specify)	✓								
c. Were the materials steam-cleaned prior to installation?									
• If no, how were the materials cleaned?	✓								
<b>3. Well Intake Design and Well Development</b>									
a. Was a well intake screen installed?									
• What is the length of the screen for the well?									
• Is the screen manufactured?									
b. Was a filter pack installed?									
• What kind of filter pack was employed?									
• Is the filter pack compatible with formation materials?									
• How was the filter pack installed?									

	Y/N
• What are the dimensions of the filter pack?	Y
• Has a turbidity measurement of the well water ever been made?	Y
• Have the filter pack and screen been designed for the insitu materials?	Y
c. Well development	
• Was the well developed?	Y
• What technique was used for well development?	
<input checked="" type="checkbox"/> Surge block <input type="checkbox"/> Bailer <input type="checkbox"/> Air surging <input type="checkbox"/> Water pumping <input type="checkbox"/> Other (specify) _____	
4. Annular Space Seals	
a. What is the annular space in the saturated zone directly above the filter pack filled with:	
<input checked="" type="checkbox"/> Sodium bentonite (specify type and grit) <input type="checkbox"/> Cement (specify neat or concrete) <input type="checkbox"/> Other (specify) _____	
b. Was the seal installed by:	
<input type="checkbox"/> Dropping material down the hole and tamping <input type="checkbox"/> Dropping material down the inside of hollow-stem auger <input type="checkbox"/> Tremie pipe method <input type="checkbox"/> Other (specify) _____	N
c. Was a different seal used in the unsaturated zone? If yes,	N
• Was this seal made with?	
<input type="checkbox"/> Sodium bentonite (specify type and grit) <input type="checkbox"/> Cement (specify neat or concrete)- Other (specify) _____	N
• Was this seal installed by?	
<input type="checkbox"/> Dropping material down the hole and tamping <input type="checkbox"/> Dropping material down the inside of hollow stem auger <input type="checkbox"/> Other (specify) _____	N
d. Is the upper portion of the borehole sealed with a concrete cap to prevent infiltration from the surface?	
e. Is the well fitted with an above-ground protective device and bumper guards?	Y
f. Has the protective cover been installed with locks to prevent tampering?	N



	Y/N
<b>H. Evaluation of the Facility's Detection Monitoring Program</b>	
1. Placement of Downgradient Detection Monitoring Wells	
a. Are the ground-water monitoring wells or clusters located immediately adjacent to the waste management area?	Y
b. How far apart are the detection monitoring wells?	Y
c. Does the owner/operator provide a rationale for the location of each monitoring well or cluster?	Y
d. Does the owner/operator identified the well screen lengths of each monitoring well or clusters?	Y
e. Does the owner/operator provide an explanation for the well screen lengths of each monitoring well or cluster?	Y
f. Do the actual locations of monitoring wells or clusters correspond to those identified by the owner/operator?	Y
2. Placement of Upgradient Monitoring Wells	
a. Has the owner/operator documented the location of each upgradient monitoring well or cluster?	Y
b. Does the owner/operator provide an explanation for the location(s) of the upgradient monitoring wells?	Y
c. What length screen has the owner/operator employed in the background monitoring well(s)?	Y
d. Does the owner/operator provide an explanation for the screen length(s) chosen?	Y
e. Does the actual location of each background monitoring well or cluster correspond to that identified by the owner/operator?	Y
<b>I. Office Evaluation of the Facility's Assessment Monitoring Program</b>	
1. Does the assessment plan specify:	
a. The number, location, and depth of wells?	Y
b. The rationale for their placement and identify the basis that will be used to select subsequent sampling locations and depths in later assessment phases?	Y
2. Does the list of monitoring parameters include all hazardous waste constituents from the facility?	Y

	Y/N
a. Does the water quality parameter list include other important indicators not classified as hazardous waste constituents?	Y
b. Does the owner/operator provide documentation for the listed wastes which are not included?	Y
3. Does the owner/operator's assessment plan specify the procedures to be used to determine the rate of constituent migration in the ground-water?	Y
4. Has the owner/operator specified a schedule of implementation in the assessment plan?	Y
5. Have the assessment monitoring objectives been clearly defined in the assessment plan?	Y
a. Does the plan include analysis and/or re-evaluation to determine if significant contamination has occurred in any of the detection monitoring wells?	Y
b. Does the plan provide for a comprehensive program of investigation to fully characterize the rate and extent of contaminant migration from the facility?	Y
c. Does the plan call for determining the concentrations of hazardous wastes and hazardous waste constituents in the ground water?	Y
d. Does the plan employ a quarterly monitoring program?	Y
6. Does the assessment plan identify the investigatory methods that will be used in the assessment phase?	Y
a. Is the role of each method in the evaluation fully described?	Y
b. Does the plan provide sufficient descriptions of the direct methods to be used?	Y
c. Does the plan provide sufficient descriptions of the indirect methods to be used?	Y
d. Will the method contribute to the further characterization of the contaminant movement?	Y
7. Are the investigatory techniques utilized in the assessment program based on direct methods?	Y
a. Does the assessment approach incorporate indirect methods to further support direct methods?	Y
b. Will the planned methods called for in the assessment approach ultimately meet performance standards for assessment monitoring?	Y
c. Are the procedures well defined?	Y
d. Does the approach provide for monitoring wells similar in design and construction as the detection monitoring wells?	Y

	Y/N
e. Does the approach employ taking samples during drilling or collecting core samples for further analysis?	Y
8. Are the indirect methods to be used based on reliable and accepted geophysical techniques?	Y
a. Are they capable of detecting subsurface changes resulting from contaminant migration at the site?	Y
b. Is the measurement at an appropriate level of sensitivity to detect ground-water quality changes at the site?	Y
c. Is the method appropriate considering the nature of the subsurface materials?	Y
d. Does the approach consider the limitations of these methods?	Y
e. Will the extent of contamination and constituent concentration be based on direct methods and sound engineering judgment? (Using indirect methods to further substantiate the findings.)	Y
9. Does the assessment approach incorporate any mathematical modeling to predict contaminant movement?	Y
a. Will site specific measurements be utilized to accurately portray the subsurface?	Y
b. Will the derived data be reliable?	Y
c. Have the assumptions been identified?	Y
d. Have the physical and chemical properties of the site-specific wastes and hazardous waste constituents been identified?	Y
J. Conclusions	
1. Subsurface geology	
a. Has sufficient data been collected to adequately define petrography and petrographic variation?	N
b. Has the subsurface geochemistry been adequately defined?	N
c. Was the boring/coring program adequate to define subsurface geologic variation?	N
d. Was the owner/operator's narrative description complete and accurate in its interpretation of the data?	N
e. Does the geologic assessment address or provide means to resolve any information gaps?	N
2. Ground-water flowpaths	
a. Did the owner/operator adequately establish the horizontal and vertical components of ground-water flow?	N

	Y/N
b. Were appropriate methods used to establish ground-water flowpaths?	✓
c. Did the owner/operator provide accurate documentation?	✓
d. Are the potentiometric surface measurements valid?	✓
e. Did the owner/operator adequately consider the seasonal and temporal effects on the ground-water?	✓
f. Were sufficient hydraulic conductivity tests performed to document lateral and vertical variation in hydraulic conductivity in the entire hydrogeologic subsurface below the site?	✓
<b>3. Uppermost Aquifer</b>	✓
a. Did the owner/operator adequately define the upper-most aquifer?	✓
<b>4. Monitoring Well Construction and Design</b>	✓
a. Do the design and construction of the owner/operator's ground-water monitoring wells permit depth discrete ground-water samples to be taken?	✓
b. Are the samples representative of ground-water quality?	✓
c. Are the ground-water monitoring wells structurally stable?	✓
d. Does the ground-water monitoring well's design and construction permit an accurate assessment of aquifer characteristics?	✓
<b>5. Detection Monitoring</b>	✓
a. Downgradient Wells <ul style="list-style-type: none"> <li>• Do the location, and screen lengths of the ground-water monitoring wells or clusters in the detection monitoring system allow the immediate detection of a release of hazardous waste or constituents from the hazardous waste management area to the uppermost aquifer?</li> </ul>	✓
b. Upgradient Wells <ul style="list-style-type: none"> <li>• Do the location and screen lengths of the upgradient (background) ground-water monitoring wells ensure the capability of collecting ground-water samples representative of upgradient (background) ground-water quality including any ambient heterogeneous chemical characteristics?</li> </ul>	✓
<b>6. Assessment Monitoring</b>	✓
a. Has the owner/operator adequately characterized site hydrogeology to determine contaminant migration?	✓
b. Is the detection monitoring system adequately designed and constructed to immediately detect any contaminant release?	✓

	Y/N
c. Are the procedures used to make a first determination of contamination adequate?	Y
d. Is the assessment plan adequate to detect, characterize, and track contaminant migration?	Y
e. Will the assessment monitoring wells, given site hydrogeologic conditions, define the extent and concentration of contamination in the horizontal and vertical planes?	Y
f. Are the assessment monitoring wells adequately designed and constructed?	Y
g. Are the sampling and analysis procedures adequate to provide true measures of contamination?	Y
h. Do the procedures used for evaluation of assessment monitoring data result in determinations of the rate of migration, extent of migration, and hazardous constituent composition of the contaminant plume?	Y
i. Are the data collected at sufficient frequency and duration to adequately determine the rate of migration?	Y
j. Is the schedule of implementation adequate?	Y
k. Is the owner/operator's assessment monitoring plan adequate?	Y
• If the owner/operator had to implement his assessment monitoring plan, was it implemented satisfactorily?	Y
<b>II. Field Evaluation</b>	
<b>A. Ground-Water Monitoring System</b>	
1. Are the numbers, depths, and locations of monitoring wells in agreement with those reported in the facility's monitoring plan? (See Section 3.2.3.)	Y
<b>B. Monitoring Well Construction</b>	
1. Identify construction material material diameter	Y
a. Primary Casing _____	
b. Secondary or outside casing _____	
2. Is the upper portion of the borehole sealed with concrete to prevent infiltration from the surface?	Y
3. Is the well fitted with an above-ground protective device?	Y
4. Is the protective cover fitted with locks to prevent tampering? If a facility utilizes more than a single well design, answer the above questions for each well design?	Y



	Y/N
<b>III. Review of Sample Collection Procedures</b>	
<b>A. Measurement of Well Depths /Elevation</b>	
1. Are measurements of both depth to standing water and depth to the bottom of the well made?	Y
2. Are measurements taken to the 0.01 feet?	Y
3. What device is used?	Y
4. Is there a reference point established by a licensed surveyor?	Y
5. Is the measuring equipment properly cleaned between well locations to prevent cross contamination?	Y
<b>B. Detection of Immiscible Layers</b>	
1. Are procedures used which will detect light phase immiscible layers?	N
2. Are procedures used which will detect heavy phase immiscible layers?	N
<b>C. Sampling of Immiscible Layers</b>	
1. Are the immiscible layers sampled separately prior to well evacuation?	N
2. Do the procedures used minimize mixing with watersoluble phases?	N
<b>D. Well Evacuation</b>	
1. Are low yielding wells evacuated to dryness?	N
2. Are high yielding wells evacuated so that at least three casing volumes are removed?	N
3. What device is used to evacuate the wells?	N
4. If any problems are encountered (e.g., equipment malfunction) are they noted in a field logbook?	N

E. Sample Withdrawal	Y/N
1. For low yielding wells, are samples for volatiles, pH, and oxidation/reduction potential drawn first after the well recovers?	Y
2. Are samples withdrawn with either fluoro-carbon/resins or stainless steel (316, 304 or 2205) sampling devices?	Y
3. Are sampling devices either bottom valve bailers or positive gas displacement bladder pumps?	Y
4. If bailers are used, is fluorocarbon/resin coated wire, single strand stainless steel wire, or monofilament used to raise and lower the bailer?	Y
5. If bladder pumps are used, are they operated in a continuous manner to prevent aeration of the sample?	Y
6. If bailers are used, are they lowered slowly to prevent degassing of the water?	Y
7. If bailers are used, are the contents transferred to the sample container in a way that minimizes agitation and aeration?	Y
8. Is care taken to avoid placing clean sampling equipment on the ground or other contaminated surfaces prior to insertion into the well?	Y
9. If dedicated sampling equipment is not used, is equipment disassembled and thoroughly cleaned between samples?	Y
10. If samples are for inorganic analysis, does the cleaning procedure include the following sequential steps: a. Dilute acid rinse ( $\text{HNO}_3$ or $\text{HCl}$ )? 11. If samples are for organic analysis, does the cleaning procedure include the following sequential steps:	Y
11. If samples are for inorganic analysis, does the cleaning procedure include the following sequential steps:	Y
a. Nonphosphate detergent wash?	Y
b. Tap water rinse?	Y
c. Distilled/deionized water rinse?	Y
d. Acetone rinse?	Y
e. Pesticide-grade hexane rinse?	Y

	Y/N
12. Is sampling equipment thoroughly dry before use?	Y
13. Are equipment blanks taken to ensure that sample cross-contamination has not occurred?	X
14. If volatile samples are taken with a positive gas displacement bladder pump, are pumping rates below 100 ml/min?	Y
<b>F. In-situ or Field Analyses</b>	
1. Are the following labile (chemically unstable) parameters determined in the field:	
a. pH?	Y
b. Temperature?	Y
c. Specific conductivity?	Y
d. Redox potential?	Y
e. Chlorine?	Y
f. Dissolved oxygen?	Y
g. Turbidity?	Y
h. Other (specify) _____	Y
2. For in-situ determinations, are they made after well evacuation and sample removal?	Y
3. If sample is withdrawn from the well, is parameter measured from a split portion?	Y
4. Is monitoring equipment calibrated according to manufacturers' specifications and consistent with SW-846?	Y
5. Is the date, procedure, and maintenance for equipment calibration documented in the field logbook?	Y
<b>IV. Review of Sample Preservation and Handling Procedures</b>	
<b>A. Sample Containers</b>	
1. Are samples transferred from the sampling device directly to their compatible containers?	Y

	Y/N
2. Are sample containers for metals (inorganics) analyses polyethylene with polypropylene caps?	Y
3. Are sample containers for organics analysis glass bottles with fluorocarbonresin-lined caps?	Y
4. If glass bottles are used for metals samples are the caps fluorocarbonresin-lined?	Y
5. Are the sample containers for metal analyses cleaned using these sequential steps:	
a. Nonphosphate detergent wash?	X
b. 1:1 nitric acid rinse?	
c. Tap water rinse?	
d. 1:1 hydrochloric acid rinse?	
e. Tap water rinse?	
f. Distilled/deionized water rinse?	
6. Are the sample containers for organic analyses cleaned using these sequential steps:	
a. Nonphosphate detergent/hot water wash?	Y
b. Tap water rinse?	
c. Distilled/deionized water rinse?	
d. Acetone rinse?	
e. Pesticide-grade hexane rinse?	
7. Are trip blanks used for each sample container type to verify cleanliness?	
<b>B. Sample Preservation Procedures</b>	
1. Are samples for the following analyses cooled to 4°C:	
a. TOC?	Y
b. TOX?	
c. Chloride?	
d. Phenols?	
e. Sulfate?	
f. Nitrate?	
g. Coliform bacteria?	
h. Cyanide?	
i. Oil and grease?	
j. Hazardous constituents (1261, Appendix VIII)?	

	Y/N
2. Are samples for the following analyses field acidified to pH $\leq 2$ with $\text{HNO}_3$ :	
a. Iron?	Y
b. Manganese?	
c. Sodium?	
d. Total metals?	
e. Dissolved metals?	
f. Fluoride?	
g. Endrin?	
h. Lindane?	
i. Methoxychlor?	
j. Toxaphene?	
k. 2,4, D?	
l. 2,4,5 TP Silvex?	
m. Radium?	
n. Gross alpha?	
o. Gross beta?	
3. Are samples for the following analyses field acidified to pH $\leq 2$ with $\text{H}_2\text{SO}_4$ :	
a. Phenols?	Y
b. Oil and grease?	Y
4. Is the sample for TOC analyses field acidified to pH $\leq 2$ with $\text{HCl}$ ?	Y
5. Is the sample for TOX analysis preserved with 1 ml of 1.1 M sodium sulfite?	Y
6. Is the sample for cyanide analysis preserved with $\text{NaOH}$ to pH $> 12$ ?	Y
C. Special Handling Considerations	
1. Are organic samples handled without filtering?	Y
2. Are samples for volatile organics transferred to the appropriate vials to eliminate headspace over the sample?	Y
3. Are samples for metal analysis split into two portions?	Y
4. Is the sample for dissolved metals filtered through a 0.45 micron filter?	Y
5. Is the second portion not filtered and analyzed for total metals?	Y
6. Is one equipment blank prepared each day of ground-water sampling?	Y



# **V. Review of Chain-of-Custody Procedures**

**Y/N**

## **A. Sample Labels**

1. Are sample labels used?

2. Do they provide the following information:

a. Sample identification number?

b. Name of collector?

c. Date and time of collection?

d. Place of collection?

e. Parameter(s) requested and preservatives used?

3. Do they remain legible even if wet?

## **B. Sample Seals**

1. Are sample seals placed on those containers to ensure samples are not altered?

## **C. Field Logbook**

1. Is a field logbook maintained?

2. Does it document the following:

a. Purpose of sampling (e.g., detection or assessment)?

b. Location of well(s)?

c. Total depth of each well?

d. Static water level depth and measurement technique?

e. Presence of immiscible layers and detection method?

f. Collection method for immiscible layers and sample identification numbers?

g. Well evacuation procedures?

h. Sample withdrawal procedure?

i. Date and time of collection?

j. Well sampling sequence?

k. Types of sample containers and sample identification number(s)?

l. Preservative(s) used?

m. Parameters requested?

n. Field analysis data and method(s)?

o. Sample distribution and transporter?

p. Field observations?

	Y/N
—Unusual well recharge rates?	
—Equipment malfunction(s)?	
—Possible sample contamination?	
—Sampling rate?	
<b>D. Chain-of-Custody Record</b>	
1. Is a chain-of-custody record included with each sample?	
2. Does it document the following:	
a. Sample number?	
b. Signature of collector?	
c. Date and time of collection?	
d. Sample type?	
e. Station location?	
f. Number of containers?	
g. Parameters requested?	
h. Signatures of persons involved in chain-of-custody?	
i. Inclusive dates of custody?	
<b>E. Sample Analysis Request Sheet</b>	
1. Does a sample analysis request sheet accompany each sample?	
2. Does the request sheet document the following:	
a. Name of person receiving the sample?	
b. Date of sample receipt?	
c. Duplicates?	
d. Analysis to be performed?	
<b>IV. Review of Quality Assurance/Quality Control</b>	
A. Is the validity and reliability of the laboratory and field generated data ensured by a QA/QC program?	
B. Does the QA/QC program include:	
1. Documentation of any deviation from approved procedures?	

	Y/N
2. Documentation of analytical results for:	
a. Blanks?	Y
b. Standards?	Y
c. Duplicates?	Y
d. Spiked samples?	Y
e. Detectable limits for each parameter being analyzed?	Y
C. Are approved statistical methods used?	Y
D. Are QC samples used to correct data?	Y
E. Are all data critically examined to ensure it has been properly calculated and reported?	Y
<b>VII. Surficial Well Inspection and Field Observation</b>	
A. Are the wells adequately maintained?	Y
B. Are the monitoring wells protected and secure?	Y
C. Do the wells have surveyed casing elevations?	Y
D. Are the ground-water samples turbid?	Y
E. Have all physical characteristics of the site been noted in the inspector's field notes (i.e., surface waters, topography, surface features)?	Y
F. Has a site sketch been prepared by the field inspector with scale, north arrow, location(s) of buildings, location(s) of regulated units, locations of monitoring wells, and a rough depiction of the site drainage pattern?	Y

Y/

**VIII. Conclusions**

A. Is the facility currently operating under the correct monitoring program according to the statistical analyses performed by the current operator?

B. Does the ground-water monitoring system, as designed and operated, allow for detection or assessment of any possible ground-water contamination caused by the facility?

C. Does the sampling and analysis procedures permit the owner/operator to detect and, where possible, assess the nature and extent of a release of hazardous constituents to ground water from the monitored hazardous waste management facility?



**Adam Finley, P.E.**  
*Area Engineering Manager*  
*Western Pennsylvania/West Virginia*

August 31, 2015

RECEIVED

SEP - 1 2015

DEP, SOUTHWEST REGION  
WASTE MANAGEMENT

Mr. Michael Forbeck, P.E.  
Department of Environmental Protection  
Southwest Region – Field Operations  
Waste Management Program  
400 Waterfront Drive  
Pittsburgh, Pennsylvania 15222-4745

Subject: Quarterly Reporting Requirements  
Second Quarter 2015  
Kelly Run Sanitation, Inc. Landfill  
Forward Township, Allegheny County  
Permit I.D. No. 100663

Dear Mr. Forbeck:

In accordance with the Pennsylvania Department of Environmental Protection's (DEP) letter of February 4, 1994, enclosed is one copy of the above-referenced facility's quarterly reporting requirements (Volumes I, II, and III).

The major conclusions of this report are:

- Continued landfilling activities do not appear to be altering the existing groundwater conditions.
- The groundwater monitoring network is capable of monitoring the Benwood and Pittsburgh Coal Hydrostratigraphic units.
- The frequency of sampling and the constituents analyzed are appropriate for determining if a release has occurred.

Mr. Michael Forbeck, P.E.

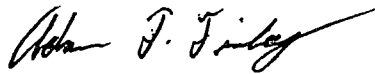
Page 2

August 31, 2015

If you have any questions or comments, please contact me at (304) 844-0932.

Very truly yours,

WASTE MANAGEMENT



Adam Finley, P.E.

Area Engineering Manager

AF:jg

Enclosures

cc: Twp. of Forward  
Allegheny County Health Department  
P. Frank, Waste Management  
T. Paullet, Kelly Run Sanitation  
R. Dlugos, Civil & Environmental Consultants, Inc.

**ORIGINAL**

M. Forbeck ☒  
Twp. of Forward ☐  
Allegheny County ☐  
Health Dept. ☐  
T. Pullet ☐  
P. Frank ☐  
A. Finley ☐  
CEC ☐



**KELLY RUN SANITATION, INC. LANDFILL  
FORWARD TOWNSHIP, ALLEGHENY COUNTY  
PENNSYLVANIA  
PADEP I.D. NO. 100663**

**QUARTERLY REPORTING REQUIREMENTS  
SECOND QUARTER 2015**

**VOLUME I  
VOLUME II  
VOLUME III**

**Submitted:  
August 2015**

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**Prepared by:  
Civil & Environmental Consultants, Inc.  
4000 Triangle Lane, Suite 200  
Export, PA 15632-9255  
CEC Project 050558**

VOL. I  
VOL. II  
VOL. III

KELLY RUN SANITATION  
PADEP I.D. NO. 100663

SECOND QUARTER 2015  
AUGUST 2015







**KELLY RUN SANITATION, INC. LANDFILL  
FORWARD TOWNSHIP, ALLEGHENY COUNTY  
PENNSYLVANIA  
PADEP I.D. NO. 100663**

**QUARTERLY REPORTING REQUIREMENTS  
SECOND QUARTER 2015**

**Submitted:  
August 2015**

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4000 Triangle Lane, Suite 200  
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CEC Project 050558**



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## APPENDICES

- A. 2<sup>nd</sup> Quarter 2015 Groundwater Form 19 Quarterly Results
- B. 2<sup>nd</sup> Quarter 2015 Surface Water and Spring Form 19 Quarterly Results
- C. 2<sup>nd</sup> Quarter 2015 Quality Assurance/Quality Control and Field Parameters
- D. 2<sup>nd</sup> Quarter 2015 Form 50 Municipal Waste Landfill Leachate Analysis
- E. 2<sup>nd</sup> Quarter 2015 Methane Probe Monitoring
- F. 2<sup>nd</sup> Quarter 2015 Dust Fall Analysis
- G. 2<sup>nd</sup> Quarter 2015 Road Watering Report



## 1.0 INTRODUCTION

### 1.1 SCOPE AND PURPOSE

This report summarizes the results of the 2<sup>nd</sup> Quarter 2015 groundwater monitoring activities at Kelly Run Sanitation, Inc. Landfill (KRS). This work was conducted on April 21 – 22, 2015 to satisfy requirements of the Pennsylvania Department of Environmental Protection (PADEP). KRS operates a municipal waste landfill (Permit I.D. No. 100663) in Forward Township, Allegheny County.

KRS has been operating since 1965 and consists of five disposal units (Figures 1, 2, and 3):

- 17-acre pre-RCRA disposal area identified as the Old Waste Area (OWA) has been closed since early 1970s and was capped in 1997;
- A 9.0-acre Phase I Area closed municipal waste landfill, that was capped in 1996 (operating permit issued March 14, 1991);
- A 24.3-acre Phase II Area closed municipal waste landfill, that was capped in 1998 (operating permit issued January 18, 1995);
- A Phase III Area active municipal waste landfill (operating permit issued February 6, 1997); and
- The 35.0-acre Western Disposal Area (WDA), a closed and capped hazardous waste landfill (Hazardous Waste Postclosure Permit U.S. Environmental Protection Agency ID No. PAD004810222).

The Groundwater Monitoring Program at KRS incorporates permanent monitoring elements to provide environmental protection during and after landfill development. Field work, sampling methodologies, data evaluation, data QA/QC, and chemical analyses were conducted in accordance with the approved site permits.



## 1.2 SITE DESCRIPTION AND BACKGROUND

KRS currently receives municipal waste at a rate of about 8,000 tons per month. The facility consists of a 408-acre parcel, of which 48 acres are currently approved for active waste disposal. KRS is permitted to take municipal solid waste and other approved special wastes.

The WDA consists of approximately 35 acres and is a closed hazardous waste disposal landfill. The WDA was constructed with an engineered clay liner and leachate collection system (i.e., interceptor drain) and was capped with a very low density polyethylene (VLDPE) geomembrane in the early 1990s. The 17-acre OWA is a natural attenuation landfill that was capped in 1997. Phase I (9.0 acres) and Phase II (24.3 acres) landfill areas were constructed as lined landfills and were completely capped and closed in 1998. Both Phase I and Phase II have leachate detection zones. The Phase III area is a 48-acre permitted double-lined landfill with a leachate detection zone. The Phase III landfill is the only active waste placement area at the landfill and receives approximately 280 tons per day of solid waste.



## 2.0 GEOLOGY AND HYDROGEOLOGY

### 2.1 REGIONAL GEOLOGY

KRS is located within the Appalachian Physiographic Province (Heath, 1984). This province is characterized by relatively deeply incised valleys and low rolling hills. KRS is constructed within the head of a relatively deeply incised valley and upon the adjacent ridge to the south. The surficial bedrock geology of KRS consists of Paleozoic deposits of the Monongahela and Conemaugh Groups. No Quaternary sedimentary deposits exist at the site. The entire site area has been deep-mined for the Pittsburgh Coal.

### 2.2 LOCAL GEOLOGY

The Pennsylvanian-aged Monongahela Group is defined as the interval between the base of the Waynesburg Coal and the base of the Pittsburgh Coal. The Monongahela has an average thickness of 350 feet in this portion of southwestern Pennsylvania and consists of five units, from stratigraphically lowest to highest: Pittsburgh, Redstone, Sewickley, Uniontown, and Waynesburg. The Pittsburgh Formation consists of approximately 100 feet of coal, shale, limestone, and sandstone and is conformably overlain by the Redstone Formation. The Redstone is approximately 80 feet thick and includes the interval between the Redstone Limestone and the base of the Sewickley Coal. The Redstone Coal is approximately 2 to 4 feet thick, and the Pittsburgh Coal seam is 8 to 9 feet thick.

#### 2.2.1 Uniontown Formation

The Uniontown Formation, the uppermost unit exposed at KRS, consists of 50 to 90 feet of interbedded shale, claystone, limestone, and sandstone. Only 20 feet of the Upper Member of the Uniontown is exposed on the adjacent hilltops. The Lower Member of the Uniontown Formation rests conformably beneath the Upper Member. In this area, the Lower Member is approximately 30 to 35 feet thick. The basal unit of the Lower Member is the Uniontown Coal, which is usually represented by 12 to 18 inches of carbonaceous shale. The lithologic units above the Uniontown Coal are comprised of



interbedded sandstone and shale through the lower and middle parts of the member and interbedded calcareous shale and argillaceous limestones in the upper part. Both the Upper Member and the Lower Member are moderately to severely weathered in outcrops exposed by earth moving activities at the site.

### 2.2.2 Pittsburgh Formation

The Pittsburgh Formation is located stratigraphically between the Uniontown Coal at the top and the base of the Pittsburgh Coal. This formation has a thickness of about 255 feet at the site. The Pittsburgh Formation consists of five members, from stratigraphically highest to lowest: Upper Member, Sewickley Member, Fishpot Member, Redstone Member, and the Lower Member.

2.2.2.1 Upper Member - The Upper Member extends from the bottom of the Uniontown Coal to the top of the Benwood Limestone Bed in the Sewickley Member. The Upper Member is in the range of 80 to 90 feet thick at the site and is comprised of interbedded shale, claystone, and argillaceous limestone. Many of the shale and claystone beds are calcareous. There are four persistent limestone beds in the Upper Member that are identified from stratigraphically highest to lowest as Limestone D, Limestone C, Limestone B, and Limestone A (Dodge, 1985 and Johnson, 1929). These limestone beds were considered part of the Benwood Limestone in older geologic literature, but they have been divided into individual beds in the Upper Member in recent geologic information. The four limestone beds range in thickness from about 1-foot to as much as 10 feet thick, although where the limestone beds are thicker than about 2 feet, they commonly have thin interbedded shale or claystone partings several inches thick.

2.2.2.2 Sewickley Member - The Sewickley Member extends from the top of the Benwood Limestone at the top of the Sewickley Member to the base of the Sewickley Coal at the base of this member. In the Phase III landfill area and adjacent areas, the Sewickley Member is 50 to 60 feet thick. The Benwood, which is the dominant unit in this member, is comprised of interbedded argillaceous limestone, shale, claystone, and fine-grained sandstone beds. Individual limestone beds can be 5 to 6 feet thick, but are



typically about 2 feet thick. Calcareous shale, claystone, and fine-grained sandstone beds separate the limestone beds. The bottom 5 to 10 feet of the member is comprised of shale and includes the Sewickley Coal bed, which in this area is a carbonaceous shale bed up to 4 feet thick.

**2.2.2.3 Fishpot Member** - The Fishpot Member of the Monongahela Group occupies the interval from the bottom of the Sewickley Coal at the top to the top of a limestone bed, which is the uppermost bed in the underlying Redstone Member. The Fishpot Member has an average thickness of 20 feet at the site and is comprised of sandstone, limestone, and shale.

**2.2.2.4 Redstone Member** - The Redstone Member occupies the interval from the top of the limestone bed mentioned above to the bottom of the Redstone Coal. This member has a thickness in the range of 30 to 35 feet and is comprised of an argillaceous limestone bed in the upper 5 feet and is underlain by shale with some thin interbedded sandstone units. The Redstone Coal horizon, which is the basal unit of the member, varies in thickness from 2 to 4 feet thick within the area.

**2.2.2.5 Lower Member** - The Lower Member of the Monongahela Group occupies the interval from the bottom of the Redstone Coal at the top of the Member to the bottom of the Pittsburgh Coal at the base of the Member. The Lower Member is 70 to 80 feet thick and is comprised predominantly of shale and claystone. The Pittsburgh Coal, the basal unit in this Member, has been deep-mined under the entire site area. The coal has a thickness of 8 to 9 feet in the vicinity of the site. Mine maps for the underground mine workings indicate that the coal was mined by the complete retreat method after room-and-pillar mining (DEI, 1996a).

### **2.2.3 Conemaugh Group**

Underlying the Monongahela Group is the Conemaugh Group. This group of rocks has a thickness of 550 to 600 feet in the western Pennsylvania area and is comprised of interbedded sandstone, shale, and claystone units with thin limestone beds and thin coal





beds that are not economically important resources. The Conemaugh Group lies below drainage in the area.

## 2.3 STRUCTURAL GEOLOGY

The Appalachian Physiographic Province is characterized by a series of low amplitude, symmetrical, and subparallel anticlines and synclines. Regionally, these fold axes trend roughly north/northeast-south/southwest. KRS is located on the east limb of the Roaring Run (Murrysville) Anticline and strata at the site generally strike N80° E and dip 2° SE.

## 2.4 SITE HYDROGEOLOGY

The monitoring well network targets the water-bearing zones where any potential impact would be observed at the earliest possible time. Two aquifers have been identified at KRS: the Benwood Limestone and the Pittsburgh Coal. Vertical gradients between the aquifers are generally downward (DEI, 1995).

### 2.4.1 Benwood Limestone Hydrostratigraphic Unit

Groundwater occurs under perched conditions within the Benwood Limestone (DEI, 1996a). Published reports indicate that the Benwood Limestone is a poor producer of groundwater in southern Allegheny County (Piper, 1933). Piper (1933) indicates that in this area the yields from the Benwood Limestone are small and erratic and a considerable proportion of wells completed into this unit are unsuccessful.

Groundwater flow direction is dictated by the gentle southeastward dip that occurs throughout the site area. The horizontal gradient is 0.0194 ft/ft (calculated from MW-301R to MW-310D) (Figure 2). Discharge from the Benwood Limestone Hydrostratigraphic unit is primarily to springs in the site area and local surface water bodies. The unnamed tributary to Fallen Timber Run is the principal receiving stream downgradient of the site.



Groundwater within the Benwood occurs as a result of secondary porosity caused by joint and fracture planes occurring within the rock. Primary porosity occurring with the Benwood appears to be negligible (DEI, 1996a). Groundwater within the Benwood occurs at the base of this unit, and downward vertical flow is restricted by the underlying carbonaceous shale of the Sewickley Coal horizon. Constant-rate pumping tests indicate that the measured hydraulic conductivity is approximately  $1.14 \times 10^{-3}$  cm/sec (3.23 ft/day) and calculated porosity is 10 percent (DEI, 1996a).

Wells drilled through the Benwood and completed in the Pittsburgh Coal are characterized by not having encountered groundwater. DEI (1996a and 1996b) noted that groundwater flow does not occur between the Benwood and the Pittsburgh Coal and the geochemical fingerprints for these individual hydrostratigraphic units are different.

Groundwater within the Benwood is classified as a calcium/sodium-bicarbonate/chloride type of water. However, groundwater sampled from wells located south (downgradient) of the WDA [reported from Benwood monitoring wells MW-302, MW-303 (redrilled as MW-303R), MW-305 (decommissioned), MW-306 (decommissioned), and MW-307] are dominant in sodium, chloride, or both sodium and chloride (DEI, 1996a).

#### 2.4.2 Pittsburgh Coal Hydrostratigraphic Unit

The Pittsburgh Coal Hydrostratigraphic Unit consists of the remnant mine workings, voids, and stumps in the retreat-mined Pittsburgh Coal. Piper (1933) concluded from mining observations that the Pittsburgh Coal in this area is not generally a water-bearing unit. Groundwater quality in the Pittsburgh Coal is generally degraded due to the presence of elevated levels of metals and sulfate. DEI (1996b) reported that groundwater within the Pittsburgh Coal is, in general, a non-dominant cation sulfate type of water.

Groundwater in the Pittsburgh Coal occurs under unconfined conditions (DEI, 1996b). A mine pool probably exists downgradient of the landfill. Groundwater recovered from the generally dry Pittsburgh Coal groundwater monitoring wells shows an acid-mine drainage characteristic (i.e., elevated concentrations of sulfate, iron, magnesium,



aluminum). Further, springs issuing from the Pittsburgh Coal 1 to 2 miles downgradient of the landfill show no influence related to leachate indicator parameters, but do show elevated acid-mine drainage constituents (DEI, 1996b). Consequently, DEI (1996b) concluded that the Benwood aquifer is not draining to the Pittsburgh Coal.

The Pittsburgh Coal unit occurs approximately 210 feet below the base of the active landfill (double-lined Phase III area). The Pittsburgh Coal has a measured hydraulic conductivity of  $7.42 \times 10^{-4}$  cm/sec (2.103 ft/day) (DEI, 1996b). Groundwater flow in this unit is structurally controlled and generally follows dip slope to the south-southeast (Figure 3). The Pittsburgh Coal has a measured horizontal hydraulic gradient to the south of 0.00759 ft/ft (calculated from MW-201R to MW-211R1) (Figure 3). The effective porosity of the Pittsburgh Coal is estimated at 10 percent (DEI, 1996b).



### 3.0 FIELD PROGRAM, MONITORING RESULTS, AND DISCUSSION

#### 3.1 VISUAL INSPECTION PROGRAM

The visual inspection program was implemented at KRS to aid in the early detection of a potential release. The visual inspection program performed by the sampling team includes physical examination of any stresses in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration (i.e., leachate seeps), potential water table mounding beneath the waste management unit, and any other change to the environment due to the waste management unit.

#### 3.2 WELL NETWORK AND GROUNDWATER ELEVATION MEASUREMENTS

##### 3.2.1 Well Network

Based on the August 14, 2006 revision to the WDA post-closure care permit, the groundwater detection monitoring program for the WDA and municipal waste landfills at KRS consists of 21 groundwater monitoring wells that monitor 2 groundwater units. Each monitoring well network targets the preferential flowpath for the facility.

##### Detection Monitor Well Network

<u>Monitored Zone</u>	<u>Upgradient Wells</u>	<u>Downgradient Wells</u>
Benwood Limestone (Leachate Pond 3/4)	MW-301R	MW-302, MW-303R, MW-304, MW-307D, MW-310D, MW-310R, MW-311, MW-312R, MWPZ-1, MWPZ-2, MWPZ-3
Pittsburgh Coal	MW-201R	MW-204R, MW-211R1
Lower Leachate Pond (Pittsburgh Coal)	MW-P1U	MW-P1D1R, MW-P1D2
Upper Leachate Pond (Pittsburgh Coal)	MW-P2U	MW-P2D1, MW-P2D2



### 3.2.2 Groundwater Elevation Measurements

Prior to initiation of groundwater purging and sampling activities, depth to water and water level elevation (feet above mean sea level) were recorded to the nearest hundredth of a foot. Water levels were collected from a total of 21 monitoring wells (MW-303R is a groundwater recovery well and reference elevation is not available for MW-P2U). The water level measurements are utilized in preparation of groundwater contour maps to determine groundwater flow direction and gradient at the site.

Water level data were collected from April 21 – 22, 2015 using an electronic water level meter. Depth to groundwater was measured in each well and converted to elevations in feet above mean sea level (Table 2). Groundwater elevations for the 2<sup>nd</sup> Quarter 2015 sampling event are generally comparable to historical groundwater elevation measurements.

Using water levels measured on April 21 – 22, 2015, potentiometric surface maps were prepared that depict a plan view of horizontal groundwater flow (Figures 2 and 3). Groundwater within the Benwood Hydrostratigraphic Unit generally flows to the south and southeast (Figure 2). Groundwater within the Pittsburgh Coal Hydrostratigraphic Unit generally flows to the south-southeast (Figure 3).

### 3.3 GROUNDWATER GRADIENT AND FLOW VELOCITY

The horizontal groundwater seepage velocity downgradient of the landfill was estimated using the following equation:

$$v = \frac{(K_h i)}{n_e}$$

Where:

- v = average groundwater velocity;
- $K_h$  = aquifer horizontal conductivity;
- i = average hydraulic gradient; and
- $n_e$  = effective aquifer porosity (Freeze and Cherry, 1979).



The potentiometric surface map (April 21 – 22, 2015) of the Benwood Hydrostratigraphic Unit indicates that groundwater flow in this unit is from northwest to southeast with a horizontal gradient of  $1.94 \times 10^{-2}$  ft/ft (Figure 2). The average horizontal velocity of the Benwood Hydrostratigraphic Unit is 0.626 ft/day (229 ft/year), based upon an average hydraulic conductivity of  $1.14 \times 10^{-3}$  cm/sec (3.23 ft/day) (DEI, 1996a) and effective porosity of 10 percent (DEI, 1996a).

The potentiometric surface map (April 21 – 22, 2015) of the Pittsburgh Coal Hydrostratigraphic Unit indicates that groundwater flow in this unit is from north-northwest to south-southeast with a horizontal gradient of  $7.59 \times 10^{-3}$  ft/ft (Figure 3). The average horizontal groundwater velocity of the Pittsburgh Coal Hydrostratigraphic Unit is 0.160 ft/day (58.3 ft/year), based upon an average hydraulic conductivity of  $7.42 \times 10^{-4}$  cm/sec (2.103 ft/day) (DEI, 1996b) and effective porosity of 10 percent (DEI, 1996b).

### 3.4 SAMPLING AND ANALYTICAL PROGRAM

#### 3.4.1 Field Program

Field sampling activities for the groundwater monitoring wells for the 2<sup>nd</sup> Quarter 2015 were conducted April 21 – 22, 2015 (Tables 1 and 2). Monitoring well purging and sampling activities were implemented in accordance with the site's Groundwater Sampling and Analysis Plan and site permit. Wells were purged and sampled using dedicated pump systems or hand bailers (Appendix C).

#### 3.4.2 Laboratory Analysis and Monitoring Parameters

As described in the municipal site's Groundwater Sampling and Analysis Plan (CE Consultants, 1995) and the WDA's Groundwater Monitoring and Reporting Plan (MFG, Inc., 2003), the KRS Landfill monitoring list was selected based on an evaluation of site-specific information including background groundwater chemistry, leachate analytical results, and chemical detectability, mobility, and persistence. Monitoring wells at the site are analyzed for PADEP Form 19 constituents and additional parameters at



select wells in accordance with the recently revised (August 14, 2006) post-closure permit for the WDA.

**DETECTION MONITORING  
PADEP FORM 19 QUARTERLY CONSTITUENTS**

INORGANIC AND GENERAL CHEMISTRY

Alkalinity, total*	Iron	Sodium*
Ammonia-nitrogen*	Magnesium*	Sulfate*
Bicarbonate (as CaCO <sub>3</sub> )*	Manganese*	Total Organic Carbon*
Calcium*	Nitrate-Nitrogen	Total Dissolved Solids*
Chemical Oxygen Demand*	pH, Field & Laboratory*	Total Phenolics
Chloride*	Potassium*	Turbidity
Fluoride	Specific conductance,	
	Field & Laboratory*	* Indicator analyte

ORGANIC CHEMISTRY

Alkalinity, total*	Iron	Sodium*
Ammonia-nitrogen*	Magnesium*	Sulfate*
Bicarbonate (as CaCO <sub>3</sub> )*	Manganese*	Total Organic Carbon*
Calcium*	Nitrate-Nitrogen	Total Dissolved Solids*
Chemical Oxygen Demand*	pH, Field & Laboratory*	Total Phenolics
Chloride*	Potassium*	Turbidity
Fluoride	Specific conductance,	
	Field & Laboratory*	* Indicator analyte

ADDITIONAL CONSTITUENTS FOR:

MW-201, MW-204R, MW-211R1, MW-P2U, MW-301R, MW-302R,  
MW-303R, MW-304, MW-307, MW-310R, MW-311D, AND MW-312R

QUARTERLY PARAMETERS	ANNUAL PARAMETERS
Total Organic Halogen	Lead
Chromium	Arsenic
Naphthalene	Aluminum
Creosote	Cyanide

ADDITIONAL CONSTITUENTS FOR:

MW-PZ-1, MW-PZ-2, AND MW-PZ-3

QUARTERLY PARAMETER	SEMI-ANNUAL PARAMETER
Total Organic Halogen	Naphthalene



All water samples collected at the site were delivered to Geochemical Testing, Inc. in Somerset, PA for chemical analysis. Geochemical Testing is certified in the Commonwealth of Pennsylvania for performing chemical analysis of the reported parameters. Original laboratory reports detail specific reporting limits (Appendices A, B, and C).

### 3.5 ANALYTICAL PROGRAM RESULTS

The 2<sup>nd</sup> Quarter 2015 sampling event was performed April 21 – 22, 2015. Thirteen wells were sampled for Form 19 parameters, and fifteen wells were sampled for WDA Post-Closure parameters. Additional constituents were analyzed for several Benwood Limestone and Pittsburgh Coal monitoring wells. One field duplicate, one field blank, and two trip blanks were also collected.

### 3.6 GEOCHEMICAL ANALYSIS

KRS submits a quarterly report that discusses groundwater quality from all of the monitoring wells specified in the PADEP approved permit. The permit requires quarterly sampling for Form 19 parameters and time-series evaluation of leachate indicator parameters. The time versus concentration plots were analyzed for significant trends of a given constituent, unexpected geochemical signatures, and anomalously high results.

#### 3.6.1 Volatile Organic Compounds

The Benwood Limestone Hydrostratigraphic Unit has been shown to contain BTEX and naphthalene through several assessment reports (DEI, 1996a) and remediation of the aquifer was also addressed in a 1996 Consent Order and the August 14, 2006 WDA Permit. Further, Benwood Limestone groundwater monitoring well MW-303R is a recovery well that has operated as part of the remediation of the groundwater since 1996.

Several volatile organic compounds (VOCs) have historically been detected in Benwood Limestone groundwater monitoring wells. For the 2<sup>nd</sup> Quarter 2015 sampling event,





benzene was detected in MW-302R (24.6 µg/L). The concentration for benzene was within historical range for this monitoring point. VOCs were not detected above established reporting limits in any other wells.

### 3.6.2 Time-Series Analysis

The time versus concentration plots of five leachate indicator parameters (ammonia-nitrogen, alkalinity, total dissolved solids, chloride, and sodium) were analyzed for significant trends, unexpected geochemical signatures, and anomalously high results.

**3.6.2.1 Benwood** - As shown on the time-series chart (Figure 4), no significant upward trend in the concentration of any indicator parameter was noted for the Benwood Hydrostratigraphic Unit. MW-311 appears to display seasonal variability in indicator parameter concentrations. According to Waste Management and sampling personnel, stormwater runoff from heavy rain before sampling events may have infiltrated the surface casing of the well explaining the variance in water chemistry for this monitoring point. Regardless, future analytical results for MW-311 will continue to be reviewed for any possible developing trends.

Finally, geochemical analyses show that groundwater from the Benwood is a mix of water types consisting of: calcium-bicarbonate (MW-304), sodium-chloride (MW-312R and MW-311), non-dominant cation-bicarbonate water (MW-310R), and calcium-chloride (MW-310D). These are roughly consistent with observations from previous studies (e.g., DEI, 1996a) (1<sup>st</sup> Quarter 2015: Figures 7 and 8).

**3.6.2.2 Pittsburgh Coal** - As shown on the time-series chart (Figure 5), no significant upward trend in the concentration of any indicator parameter was noted for the Pittsburgh Coal Hydrostratigraphic Unit. Concentrations for alkalinity, total dissolved solids, chloride, and sodium at MW-204R and MW-211R1 appear to fluctuate seasonally. In addition, since the seasonal high concentrations of sodium, chloride, and total dissolved solids are higher at MW-211R1 than that of leachate, trends observed at this monitoring well do not appear to be the result of a leachate influence. Elevated concentrations of

trace metals (barium, iron) and other inorganic constituents (chloride, total dissolved solids) at MW-211R1 indicate groundwater at this location has been impacted by natural gas brine water. Groundwater from the Pittsburgh Coal is a water type consisting of sodium-non dominant anion water (MW-211R1 and MW-204R) (1<sup>st</sup> Quarter 2015: Figures 9 and 10).

3.6.2.3 Leachate Pond Wells - No significant upward trend in the concentration of any indicator parameter was noted for the Pittsburgh Coal Hydrostratigraphic Unit in the lower and upper leachate pond areas except for ammonia nitrogen at monitoring well MW-P1U and chloride at MW-P1D1 (Figure 6). Regardless, the concentration of ammonia nitrogen at MW-P1U during the 2<sup>nd</sup> Quarter 2015 remained generally low (<2 mg/l). Further, no significant increasing trends were observed in the remaining leachate indicator parameters at MW-P1U or MW-P1D1. Finally, groundwater chemistry from this portion of the Pittsburgh Coal differs from leachate, and characterizes, in general, as a calcium-bicarbonate to calcium-sulfate type of water (1<sup>st</sup> Quarter 2015: Figures 11 and 12).

3.6.2.4 Lysimeters - Two lysimeter sets (ML-1A and ML-2A) are located beneath the first two stages of the Phase III Area and are monitored for the presence of water. No water was detected in these lysimeters for the 2<sup>nd</sup> Quarter 2015 sampling event indicating that the liner system is not leaking into the subsurface (Table 1).

### 3.6.3 Surface Water Analysis

Six surface water samples (KR-2, FTR-2, ST-2, ST-3, ST-5, and SP-3) were collected on April 21, 2015 for Form 19 analysis (SP-4 was dry) in accordance with the revised Groundwater Monitoring and Reporting Plan approved with the August 14, 2006 WDA Permit. The SP-series surface water points monitor the Benwood which crops out along the southern portion of the landfill. Surface water points ST-2 and FTR-2 monitor Fallen Timber Run. Surface water point KR-2 monitors an unnamed tributary to Fallen Timber Run. Surface point ST-3 monitors an unnamed tributary upstream of ST-2, and ST-5 is upgradient of ST-3 on the unnamed tributary to Fallen Timber Run.



Analytical results were generally consistent with the historical data for these monitoring points, and VOCs were not detected in any surface water samples for the 2<sup>nd</sup> Quarter 2015.



#### **4.0 LABORATORY AND FIELD QUALITY ASSURANCE AND QUALITY CONTROL**

##### **4.1 TRIP, FIELD, AND EQUIPMENT BLANKS**

Two trip blanks, one field blank, and one duplicate sample were collected as part of the field sampling and analysis quality control/quality assurance activities. The field blank and trip blanks did not detect any constituents that would place the sampling event into question.

##### **4.2 HOLDING TIMES**

All samples submitted to Geochemical Testing were analyzed within the required holding times as determined by the analytical method.

##### **4.3 SAMPLE SURROGATE RECOVERIES**

Sample surrogate recovery analyses are performed with each quarterly event and reported annually with the first quarter event. However, if results are not within acceptable ranges, notification would be included in the Quality Assurance Project Report prepared by Geochemical Testing (Appendix C).

##### **4.4 METHOD BLANKS**

No laboratory method blanks contained detectable concentrations of any constituents that would place the laboratory analyses into question (Appendix C).

##### **4.5 LABORATORY CONTROL SPIKES**

Laboratory control spikes for all analytical methods are performed with each quarterly event and reported annually with the first quarter event. However, if results are not within advisory limits,



notification would be included in the Quality Assurance Project Report prepared by Geochemical Testing (Appendix C).

#### 4.6 INITIAL CALIBRATION, CONTINUING CALIBRATION, AND INTERNAL MACHINE STANDARDS

Laboratory calibration is performed with each quarterly event and reported annually with the first quarter event. However, if results are not within acceptable limits, notification would be included in the Quality Assurance Project Report prepared by Geochemical Testing (Appendix C).

#### 4.7 DUPLICATE SAMPLES

Duplicate sample analysis results were generally consistent with the corresponding original sample results.



## 5.0 CONCLUSIONS

Samples were collected at KRS according to appropriate sampling procedures for Form 19 and Form 50 parameters and sent to Geochemical Testing in Somerset, PA. The following observations are noted for the 2<sup>nd</sup> Quarter 2015 sampling event:

- The active and closed areas of KRS are underlain by two monitored hydrostratigraphic units: Benwood Limestone and the Pittsburgh Coal.
- KRS was sampled for Form 19 groundwater and surface water constituents on April 21 – 22, 2015.
- Several Benwood groundwater monitoring points were sampled for additional parameters in accordance with the August 14, 2006 WDA Permit.
- KRS leachate was sampled for Form 50 leachate constituents on April 21, 2015.
- The Benwood Limestone Hydrostratigraphic Unit has a horizontal gradient to the south of 0.0194 ft/ft, with a velocity of 0.626 ft/day (229 ft/year) (Figure 2).
- The Pittsburgh Coal Hydrostratigraphic Unit has a horizontal gradient to the south of 0.00759 ft/ft, with a velocity of 0.160 ft/day (58.5 ft/year) (Figure 3).
- One VOC (benzene) was detected in Benwood Limestone groundwater monitoring well MW-302R. VOCs were not detected above established reporting limits in other surface water or in other groundwater monitoring wells.
- Time-series analyses indicate that there are no increasing trends in the leachate indicator parameters in groundwater at Kelly Run Landfill except for ammonia nitrogen at MW-P1U and chloride at MW-P1D1.

Based on a review of recent and historical data collected during routine monitoring events at KRS, the following observations are made:

- Groundwater elevation contour maps show that local groundwater gradient and velocity have been temporally consistent in both monitored groundwater units.
- Concentrations of trace metals and other inorganic constituents in groundwater samples were generally consistent with historical concentrations (Appendix A).



Historically elevated concentrations of barium, chloride, and total dissolved solids at monitoring wells MW-211R1, MW-310, MW-311, and MW-312 are related to brine water impacts from abandoned onsite natural gas wells.

- Surface water analyses of metals and inorganic parameter concentrations are generally consistent with historical concentrations (Appendix B). The Benwood Spring continues to be collected and treated as leachate due to historical detections of VOCs.
- The Benwood Limestone Hydrostratigraphic Unit has been shown to historically contain BTEX and naphthalene through several assessment reports (DEI, 1996a) and remediation of the aquifer was also addressed in a 1996 Consent Order and the August 14, 2006 WDA Permit. Benwood groundwater monitoring well MW-303R is a recovery well that has operated as part of Kelly Run's groundwater remediation efforts since 1996.

Therefore, the major conclusions of this report are:

1. Continued landfilling activities do not appear to be altering the existing groundwater conditions.
2. The groundwater monitoring network is capable of monitoring the Benwood and Pittsburgh Coal Hydrostratigraphic units.
3. The frequency of sampling and the constituents analyzed are appropriate for determining if a release has occurred.





## 6.0 REFERENCES

- CE Consultants, Inc. (1995), "Work Plan - Groundwater Assessment Investigation, Abandoned Underground Mine Workings of the Pittsburgh Coal." Work plan with sampling and analysis plan for the sampling of Kelly Run Sanitation Landfill, May 1995.
- Dodge, C. H. (1985), "Coal Resources of Allegheny County, Pennsylvania: Part 1. Coal crop lines, mined-out areas, and structure contours." Harrisburg, PA, Pennsylvania Geological Survey.
- Dow Environmental Inc. (1995), "Benwood Limestone Groundwater Assessment and Abatement Evaluation Work Plan." Approved work plan includes a "Field Standard Operating Procedure" submitted to the Pennsylvania Department of Environmental Protection in May 1995.
- Dow Environmental Inc. (1996a), "Benwood Limestone Groundwater Abatement Plan." Abatement plan submitted to the Pennsylvania Department of Environmental Protection in January 1996.
- Dow Environmental Inc. (1996b), "Pittsburgh Coal Groundwater Assessment." Assessment of the Pittsburgh Coal submitted to the Pennsylvania Department of Environmental Protection in February 1996.
- Johnson, M. E. (1929), "Geology and Mineral Resources of the Pittsburgh Quadrangle, Pennsylvania." Pennsylvania Bureau of Topographic and Geologic Survey: 4<sup>th</sup> ser., Atlas 27, 236 p.
- MFG, Inc. (2003). "Western Disposal Area Post-Closure Permit Application" (Approved August 14, 2006) and "Western Disposal Area Groundwater Monitoring and Reporting Plan."





Piper, A. M. (1933), Ground Water in Southwestern Pennsylvania, Pennsylvania Topographic and Geologic Survey: Bulletin W 1; 406 p.

Youchak and Youchak, (1997). "Kelly Run Sanitation Landfill Solid Waste Relocation and Restoration Plan." Approved plan for the removal of water in the Old Waste Area, submitted to the Pennsylvania Department of Environmental Protection April 1997.

WASTE MANAGEMENT

KELLY RUN SANITATION, INC. LANDFILL  
Forward Township, Allegheny County

PADEP ID No. 100663

TABLES

SECOND QUARTER 2015

Submitted  
August 2015

TABLE 1

KELLY RUN LANDFILL  
PADEP I.D. NO. 100663  
SECOND QUARTER 2015  
FIELD PARAMETERS

AQUIFER	MONITORING POINT	SAMPLE DATE	SAMPLE TIME	WATER LEVEL <sup>1</sup> (ft)	WELL DEPTH <sup>1</sup> (ft)	WATER VOLUME <sup>2</sup> (gallons)	THREE VOLUMES (gallons)	WATER PURGED	VOLUMES PURGED	FIELD PARAMETERS			COMMENTS
										pH	COND (µS/m)	TEMP (C)	
Benwood Limestone	MW-301R	04/22/2015	08:10 AM	134.32	135.85	0.99	2.98	1.00	1.01	6.03	1737	10.4	
	MW-302R	04/21/2015	02:10 PM	148.10	170.26	14.40	43.21	6.00	0.42	6.58	5133	13.4	
	MW-303R	04/21/2015	10:30 AM	38.50	63.20	16.06	48.17	NA	NA	6.79	952	12.4	
	MW-304	04/21/2015	11:08 AM	46.15	64.15	11.70	35.10	1.50	0.13	6.79	1180	12.5	
	MW-307D	04/21/2015	01:45 PM	156.20	168.20	7.80	23.40	3.00	0.38	7.19	3823	12.6	
	MW-310D	04/22/2015	11:00 AM	124.55	128.84	2.79	8.37	2.50	0.90	12.38	5150	10.4	
	MW-310R	04/21/2015	11:45 AM	94.15	108.81	9.53	28.59	1.40	0.15	7.44	1056	12.6	
	MW-311	04/21/2015	12:28 PM	101.93	116.85	9.70	29.09	6.00	0.62	8.13	6457	12.2	
	MW-312R	04/21/2015	12:55 PM	167.90	182.65	9.59	28.76	2.50	0.26	7.15	5027	12.5	
	PZ-1	04/22/2015	08:30 AM	98.60	119.32	13.47	40.40	2.50	0.19	7.71	2139	13.2	
Pittsburgh Coal	PZ-2	04/22/2015	08:50 AM	111.98	129.45	11.36	34.07	3.00	0.26	7.84	2507	13.0	
	PZ-3	04/22/2015	09:10 AM	91.88	111.08	12.48	37.44	0.75	0.06	7.06	2508	12.8	
	MW-201R	04/21/2015	02:40 PM	273.10	276.44	2.17	6.51	1.50	0.69	6.72	1584	12.3	
	MW-204	04/21/2015	04:45 PM	294.30	310.00	10.21	30.62	0.60	0.06	7.25	1573	13.3	
	MW-211R1	04/21/2015	10:20 AM	192.20	196.92	3.07	9.20	1.40	0.46	6.48	1877	13.2	
	Lower Leachate Pond MW-P1U	04/21/2015	04:00 PM	17.31	36.75	12.64	37.91	13.00	1.03	6.94	1299	13.2	
	MW-P1D1	04/21/2015	03:40 PM	27.50	38.82	7.36	22.07	1.50	0.20	7.26	1353	13.0	
	MW-P1D2	04/21/2015	03:25 PM	23.92	42.12	11.83	35.49	4.00	0.34	6.95	1236	12.7	
	Upper Leachate Pond MW-P2U	04/22/2015	10:00 AM	90.22	92.34	1.38	4.13	0.60	0.44	4.59	1831	10.6	
	MW-P2D1	04/22/2015	09:40 AM	91.72	96.50	3.11	9.32	0.80	0.26	6.70	1080	11.1	
Surface Water	MW-P2D2	04/22/2015	10:20 AM	92.80	98.61	3.78	11.33	0.60	0.16	6.69	1218	11.1	
	KR-2	04/21/2015	11:40 AM							7.88	723	13.3	
	FTR-2	04/21/2015	10:50 AM							8.26	874	11.2	
	ST-2	04/21/2015	10:40 AM							8.59	663	11.4	
	ST-3	04/21/2015	10:35 AM							8.31	773	11.8	
	ST-5	04/21/2015	10:25 AM							7.64	822	12.1	
	SP-3	04/21/2015	10:10 AM							6.99	1061	13.1	
	SP-4	04/21/2015	DRY										Dry
Leachate	PHASE 1	04/21/2015	12:30 PM							6.88	2503	21.6	
	PHASE 2	04/21/2015	04:10 PM							7.40	1990	13.3	
	PHASE 3	04/21/2015	09:45 AM							7.30	10900	18.9	
	WDA LEACH.	04/21/2015	11:30 AM							6.63	1418	19.8	
	PHASE 1 DZ												Sampled Annually
	PHASE 2 DZ												Sampled Annually
	PHASE 3A DZ												Sampled Annually
	PHASE 3B DZ												Sampled Annually
Phase III Subgrade Monitoring Pt.	ML-1A	04/22/2015	DRY										Lysimeter Is Dry
	ML-2A	04/22/2015	DRY										Lysimeter Is Dry

## Notes:

<sup>1</sup> Measured from top of inner casing.<sup>2</sup> Calculated from 0.65 gallons per foot of water

ft = feet

C = Degrees Centigrade

µS/m = microSiemens/meter

gpm = gallons per minute

NM = Not Measured

NA = Not Available

**TABLE 2**

KELLY RUN LANDFILL  
PADEP I.D. NO. 100663

**SECOND QUARTER 2015  
WATER-LEVEL ELEVATIONS**

AQUIFER	MONITORING POINT	GRADIENT POSITION	MEASUREMENT DATE	MEASUREMENT POINT ELEV. <sup>1</sup> (ft amsl)	WATER LEVEL <sup>2</sup> (ft)	WATER LEVEL ELEV. (ft amsl)
Benwood Limestone	MW-301R	U	04/21/2015	1169.67	134.32	1035.35
	MW-302R	D	04/21/2015	1154.41	148.10	1006.31
	MW-303R <sup>3</sup>	D	04/21/2015	1066.00	38.50	1027.50
	MW-304	D	04/21/2015	1055.14	46.15	1008.99
	MW-307D	D	04/21/2015	1165.07	156.20	1008.87
	MW-310D	D	04/21/2015	1099.42	124.55	974.87
	MW-310R	D	04/21/2015	1099.39	94.15	1005.24
	MW-311	D	04/21/2015	1100.37	101.93	998.44
	MW-312R	D	04/21/2015	1171.46	167.90	1003.56
	PZ-1	D	04/22/2015	1119.32	98.60	1020.72
	PZ-2	D	04/22/2015	1135.94	111.98	1023.96
	PZ-3	D	04/22/2015	1124.39	91.88	1032.51
Pittsburgh Coal	MW-201R	U	04/21/2015	1158.13	273.10	885.03
	MW-204	D	04/21/2015	1163.25	294.30	868.95
	MW-211R1	D	04/21/2015	1064.00	192.20	871.80
	Lower MW-P1U	U	04/21/2015	892.73	17.31	875.42
	Leachate MW-P1D1	D	04/21/2015	891.18	27.50	863.68
	Pond MW-P1D2	D	04/21/2015	888.43	23.92	864.51
	Upper MW-P2U	U	04/22/2015	NA	90.22	NA
	Leachate MW-P2D1	D	04/22/2015	963.17	91.72	871.45
	Pond MW-P2D2	D	04/22/2015	963.17	92.80	870.37

**Notes:**<sup>1</sup> Elevation for the top of the PVC from well logs.<sup>2</sup> Measured from the top of the 4" PVC riser pipe.<sup>3</sup> Groundwater Recovery Well

ft = foot

ft amsl = feet above mean sea level.

NA = Not Available

NM = Not Measured

TABLE 3

KELLY RUN SANITATION LANDFILL  
PA DEP I.D. NO. 100663

SECOND QUARTER 2015  
RESULTS OF CHEMICAL ANALYSES PERFORMED ON GROUNDWATER AND SURFACE WATER

				GROUNDWATER										
Chemical Constituent	Unit	Analytical Method No.	MCL	MW-201R	MW-204	MW-211R1	MW-301R	MW-302R	MW-303R	MW-304	MW-307	MW-310	MW-310R	MW-311
Inorganics														
Ammonia Nitrogen	mg/L as N	EPA 350.1&D	NA	0.29	0.4	2.25	0.41			0.44			0.14	1.62
Bicarbonate	mg/L as CaCO3	SM 4500-CO2D	NA	330	345	306	647	NA		590		< 5	398	1010
Calcium	mg/L	EPA 200.7	NA	106	131	123	156			156		605	66.7	34.7
Chemical Oxygen Demand	mg/L	HACH 8000	NA	15	< 10	15	16			< 10			18	110
Chloride	mg/L	EPA 300.0	250*	67	64	203	6	1200	8	17	367	363	7	1410
Fluoride	mg/L	EPA 300.0	4	0.2	0.4	0.2	< 0.1			< 0.1		0.3	0.1	0.3
Iron	mg/L	EPA 200.7	0.3*	1.97	21.2	32.7	3.81			< 0.05		3.73	0.36	2.52
Magnesium	mg/L	EPA 200.7	NA	44.1	46.6	45.8	111			68.8		3.2	44.3	14.3
Manganese	mg/L	EPA 200.7	0.05*	0.8	1.2	0.63	0.11			0.37		0.15	0.03	0.21
Nitrate Nitrogen	mg/L as N	EPA 300.0	10	< 0.05	< 0.05	< 0.05	0.6			< 0.05			< 0.05	1.74
pH, Field	su	FLD	NA	6.72	7.25	6.48	6.03	6.58	6.79	6.79	7.19	12.38	7.44	8.13
pH, Lab	su	SM4500-H+B	NA	7.49	7.98	6.85	7.95	7.13	7.63	7.58	7.75	12.3	8.27	8.6
Potassium	mg/L	EPA 200.7	NA	3.6	4.9	5.7	3.7			3.7		17	2.5	7.6
Sodium	mg/L	EPA 200.7	NA	189	178	201	127			22.6		175	119	1520
Specific Conductance, Field	umhos/cm	FLD	NA	1584	1573	1877	1737	5133	952	1180	3823	5150	1056	6457
Specific Conductance, Lab	umhos/cm	EPA 120.1	NA	1460	1430	1750	1560	6210	669	1140	3540	3690	972	5970
Sulfate	mg/L	EPA 300.0	250*	404	387	308	354			76		< 10	139	< 10
Alkalinity to pH 4.5	mg/L as CaCO3	ASTM D1067-02	NA	331	348	306	652			592		881	405	1050
Total dissolved solids	mg/L	SM2540-C	NA	1050	1030	1140	1140			696		1630	632	3710
Total Organic Carbon	mg/L	SM 20 5310-C	NA	1.2	1.5	4.7	1.5	53.2	2.4	2	17.5	29.1	1.8	24.4
Phenolics, total	ug/L	EPA 420.1	4000	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0		< 20.0	< 20.0
Turbidity	NTU	EPA 180.1	NA	27.9	219	0.6	54.8			0.7			6.4	52.8
Organics														
Benzene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	24.6	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	ug/L	EPA 8260B	0.05	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	ug/L	EPA 8260B	27	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	ug/L	EPA 8260B	7	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
cis-1,2-Dichloroethene	ug/L	EPA 8260B	70	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
trans-1,2-Dichloroethene	ug/L	EPA 8260B	100	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
Ethylbenzene	ug/L	EPA 8260B	700	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methylene Chloride	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
Tetrachloroethene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
Toluene	ug/L	EPA 8260B	1000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	ug/L	EPA 8260B	200	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
Trichloroethene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0		< 5.0	< 5.0	< 5.0
Vinyl Chloride	ug/L	EPA 8260B	2	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0		< 2.0	< 2.0	< 2.0
Total Xylene	ug/L	EPA 8260B	10000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Additional Parameters														
Chromium	mg/L	EPA 200.7	0.10	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01
Chromium, dissolved	mg/L	EPA 200.7D	0.10	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		< 0.01	< 0.01
Naphthalene	ug/L	EPA 8260B	100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		< 5.0	< 5.0
Total Organic Halogen	ug/L	EPA 9020B	NA	65	58	75		449	< 50	< 50	355		< 50	363

MCL = Maximum Contaminant Level (EPA Federal Drinking Water Standards or Pennsylvania DEP Statewide Health Standards for used aquifers in a residential setting where EPA Standard does not exist)

\* These values represent secondary MCLs.

Dry Points: SP-4

**TABLE 3**  
**KELLY RUN SANITATION LANDFILL**  
**PA DEP I.D. NO. 100663**

**SECOND QUARTER 2015**  
**RESULTS OF CHEMICAL ANALYSES PERFORMED ON GROUNDWATER AND SURFACE WATER**

Chemical Constituent	Unit	Analytical Method No.	MCL	GROUNDWATER									
				MW-312	MW-P1U	MW-P1D1	MW-P1D2	MW-P2U	MW-P2D1	MW-P2D2	MWPZ-1	MWPZ-2	MWPZ-3
Inorganics													
Ammonia Nitrogen	mg/L as N	EPA 350.1&D	NA	18.2	1.15	0.45	0.15	< 0.10	< 0.10	< 0.10			
Bicarbonate	mg/L as CaCO3	SM 4500-CO2D	NA	1050	522	515	432	< 5	258	254			
Calcium	mg/L	EPA 200.7	NA	204	195	135	128	252	144	160			
Chemical Oxygen Demand	mg/L	HACH 8000	NA	340	< 10	< 10	< 10	< 10	< 10	< 10			
Chloride	mg/L	EPA 300.0	250*	1470	57	86	99	27	38	29	89	118	142
Fluoride	mg/L	EPA 300.0	4	0.2	0.2	0.3	< 0.1	0.6	0.2	0.2			
Iron	mg/L	EPA 200.7	0.3*	1.8	0.97	0.81	0.05	0.44	< 0.05	1.55			
Magnesium	mg/L	EPA 200.7	NA	111	33.3	41.6	34.9	98	47.3	47.8			
Manganese	mg/L	EPA 200.7	0.05*	0.05	2.92	0.29	0.84	2.66	< 0.01	0.11			
Nitrate Nitrogen	mg/L as N	EPA 300.0	10	1.89	< 0.05	< 0.05	0.59	0.48	0.61	< 0.05			
pH, Field	su	FLD	NA	7.15	6.94	7.26	6.95	4.59	6.7	6.69	7.71	7.84	7.06
pH, Lab	su	SM4500-H+B	NA	7.97	7.32	7.38	7.21	4.43	7.04	7.13	8.3	8.38	7.63
Potassium	mg/L	EPA 200.7	NA	21.4	4.1	2.3	2.4	2.9	3.6	6			
Sodium	mg/L	EPA 200.7	NA	1180	75.4	131	107	36.4	41.5	44.7			
Specific Conductance, Field	umhos/cm	FLD	NA	5027	1299	1353	1236	1831	1080	1218	2139	2507	2508
Specific Conductance, Lab	umhos/cm	EPA 120.1	NA	5770	1260	1340	1220	1770	1060	1180	2050	2530	2510
Sulfate	mg/L	EPA 300.0	250*	< 10	117	98	97	1030	257	350			
Alkalinity to pH 4.5	mg/L as CaCO3	ASTM D1067-02	NA	1060	523	516	433	< 5	258	254			
Total dissolved solids	mg/L	SM2540-C	NA	3560	774	790	694	1660	712	832			
Total Organic Carbon	mg/L	SM 20 5310-C	NA	49.2	3	1.8	2.9	1	1.3	1.3	4.2	4.5	7
Phenolics, total	ug/L	EPA 420.1	4000	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0			
Turbidity	NTU	EPA 180.1	NA	13.1	7.7	19.2	0.9	0.6	0.3	1.7			
Organics													
Benzene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
1,2-Dibromoethane	ug/L	EPA 8260B	0.05	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
1,1-Dichloroethane	ug/L	EPA 8260B	27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
1,1-Dichloroethene	ug/L	EPA 8260B	7	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
1,2-Dichloroethane	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
cis-1,2-Dichloroethene	ug/L	EPA 8260B	70	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
trans-1,2-Dichloroethene	ug/L	EPA 8260B	100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Ethylbenzene	ug/L	EPA 8260B	700	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Methylene Chloride	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Tetrachloroethene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Toluene	ug/L	EPA 8260B	1000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
1,1,1-Trichloroethane	ug/L	EPA 8260B	200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Trichloroethene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Vinyl Chloride	ug/L	EPA 8260B	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0			
Total Xylene	ug/L	EPA 8260B	10000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0			
Additional Parameters													
Chromium	mg/L	EPA 200.7	0.10	< 0.01				< 0.01					
Chromium, dissolved	mg/L	EPA 200.7D	0.10	< 0.01				< 0.01					
Naphthalene	ug/L	EPA 8260B	100	< 5.0				< 5.0					
Total Organic Halogen	ug/L	EPA 9020B	NA	401				< 50			79	188 S	196

MCL = Maximum Contaminant Level (EPA Federal Drinking Water Standards or Pennsylvania DEP Statewide Health Standards for used aquifers in a residential setting where EPA Standard does not exist)

\* These values represent secondary MCLs.

Dry Points: SP-4

TABLE 3

KELLY RUN SANITATION LANDFILL  
PA DEP I.D. NO. 100663

SECOND QUARTER 2015  
RESULTS OF CHEMICAL ANALYSES PERFORMED ON GROUNDWATER AND SURFACE WATER

				SURFACE WATER						
Chemical Constituent	Unit	Analytical Method No.	MCL	KR-2	FTR-2	ST-2	ST-3	ST-5	SP-3	SP-4
Inorganics										
Ammonia Nitrogen	mg/L as N	EPA 350.1&D	NA	< 0.10	< 0.10	< 0.10	0.32	0.17	< 0.10	DRY
Bicarbonate	mg/L as CaCO3	SM 4500-CO2D	NA	218	202	196	180	186	352	DRY
Calcium	mg/L	EPA 200.7	NA	75.7	90.5	80.2	77.9	87.1	113	DRY
Chemical Oxygen Demand	mg/L	HACH 8000	NA	< 10	< 10	< 10	< 10	< 10	< 10	DRY
Chloride	mg/L	EPA 300.0	250*	53	58	53	70	94	28	DRY
Fluoride	mg/L	EPA 300.0	4	0.2	0.2	0.1	0.1	0.1	< 0.1	DRY
Iron	mg/L	EPA 200.7	0.3*	0.27	1.25	0.21	0.85	0.46	0.07	DRY
Magnesium	mg/L	EPA 200.7	NA	35.9	30.3	24.1	30.2	27	78.4	DRY
Manganese	mg/L	EPA 200.7	0.05*	0.02	0.11	0.02	0.04	0.03	0.08	DRY
Nitrate Nitrogen	mg/L as N	EPA 300.0	10	0.24	0.51	0.52	0.8	0.9	1.46	DRY
pH, Field	su	FLD	NA	7.88	8.26	8.59	8.31	7.64	6.99	DRY
pH, Lab	su	SM4500-H+B	NA	8.49	8.46	8.61	8.49	8.59	8.37	DRY
Potassium	mg/L	EPA 200.7	NA	3.1	2.4	2.3	2.4	2	3.8	DRY
Sodium	mg/L	EPA 200.7	NA	33.3	68.5	34.7	51.4	53.1	21.3	DRY
Specific Conductance, Field	umhos/cm	FLD	NA	723	874	663	773	822	1061	DRY
Specific Conductance, Lab	umhos/cm	EPA 120.1	NA	707	871	658	760	830	970	DRY
Sulfate	mg/L	EPA 300.0	250*	59	150	53	97	85	154	DRY
Alkalinity to pH 4.5	mg/L as CaCO3	ASTM D1067-02	NA	225	208	204	185	193	360	DRY
Total dissolved solids	mg/L	SM2540-C	NA	420	522	398	480	472	654	DRY
Total Organic Carbon	mg/L	SM 20 5310-C	NA	2.7	1.3	1.6	1.5	1.3	1.3	DRY
Phenolics, total	ug/L	EPA 420.1	4000	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	DRY
Turbidity	NTU	EPA 180.1	NA	3.5	5.6	4	18.8	7.7	1.8	DRY
Organics										
Benzene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
1,2-Dibromoethane	ug/L	EPA 8260B	0.05	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
1,1-Dichloroethane	ug/L	EPA 8260B	27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
1,1-Dichloroethene	ug/L	EPA 8260B	7	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
1,2-Dichloroethane	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
cis-1,2-Dichloroethene	ug/L	EPA 8260B	70	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
trans-1,2-Dichloroethene	ug/L	EPA 8260B	100	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Ethylbenzene	ug/L	EPA 8260B	700	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Methylene Chloride	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Tetrachloroethene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Toluene	ug/L	EPA 8260B	1000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
1,1,1-Trichloroethane	ug/L	EPA 8260B	200	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Trichloroethene	ug/L	EPA 8260B	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Vinyl Chloride	ug/L	EPA 8260B	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	DRY
Total Xylene	ug/L	EPA 8260B	10000	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	DRY
Additional Parameters										
Chromium	mg/L	EPA 200.7	0.10							DRY
Chromium, dissolved	mg/L	EPA 200.7D	0.10							DRY
Naphthalene	ug/L	EPA 8260B	100							DRY
Total Organic Halogen	ug/L	EPA 9020B	NA							DRY

MCL = Maximum Contaminant Level (EPA Federal Drinking Water Standards or Pennsylvania DEP Statewide Health Standards for used aquifers in a residential setting where EPA Standard does not exist)

\* These values represent secondary MCLs.

Dry Points: SP-4

WASTE MANAGEMENT

KELLY RUN SANITATION, INC. LANDFILL  
Forward Township, Allegheny County

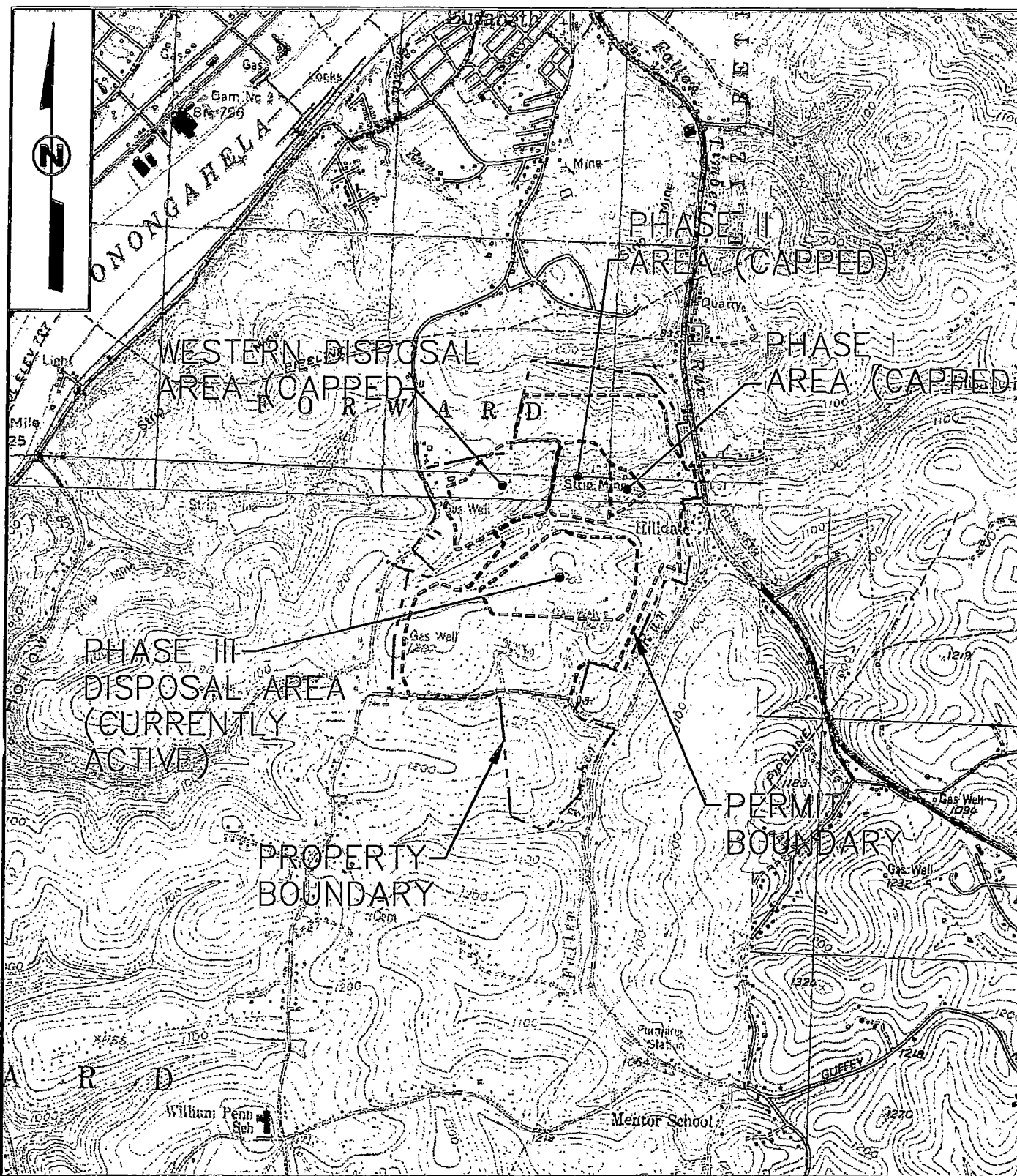
PADEP ID No. 100663

FIGURES

SECOND QUARTER 2015

Submitted  
August 2015





REFERENCE  
 U.S.G.S. 7.5 MINUTE TOPOGRAPHIC  
 QUADRANGLE MAPS OF GLASSPORT,  
 MCKESSPORT, MONOGAHELA AND DONORA, PA

SCALE  
 2000 0 2000 FT.



**Civil & Environmental Consultants, Inc.**  
 EXPORT, PA PITTSBURGH, PA  
 (724) 327-5200 • (412) 429-2324  
 Cincinnati, OH • Columbus, OH • Indianapolis, IN • Nashville, TN

U.S.G.S. SITE LOCATION MAP

KELLY RUN LANDFILL  
 PERMIT NO. 100663

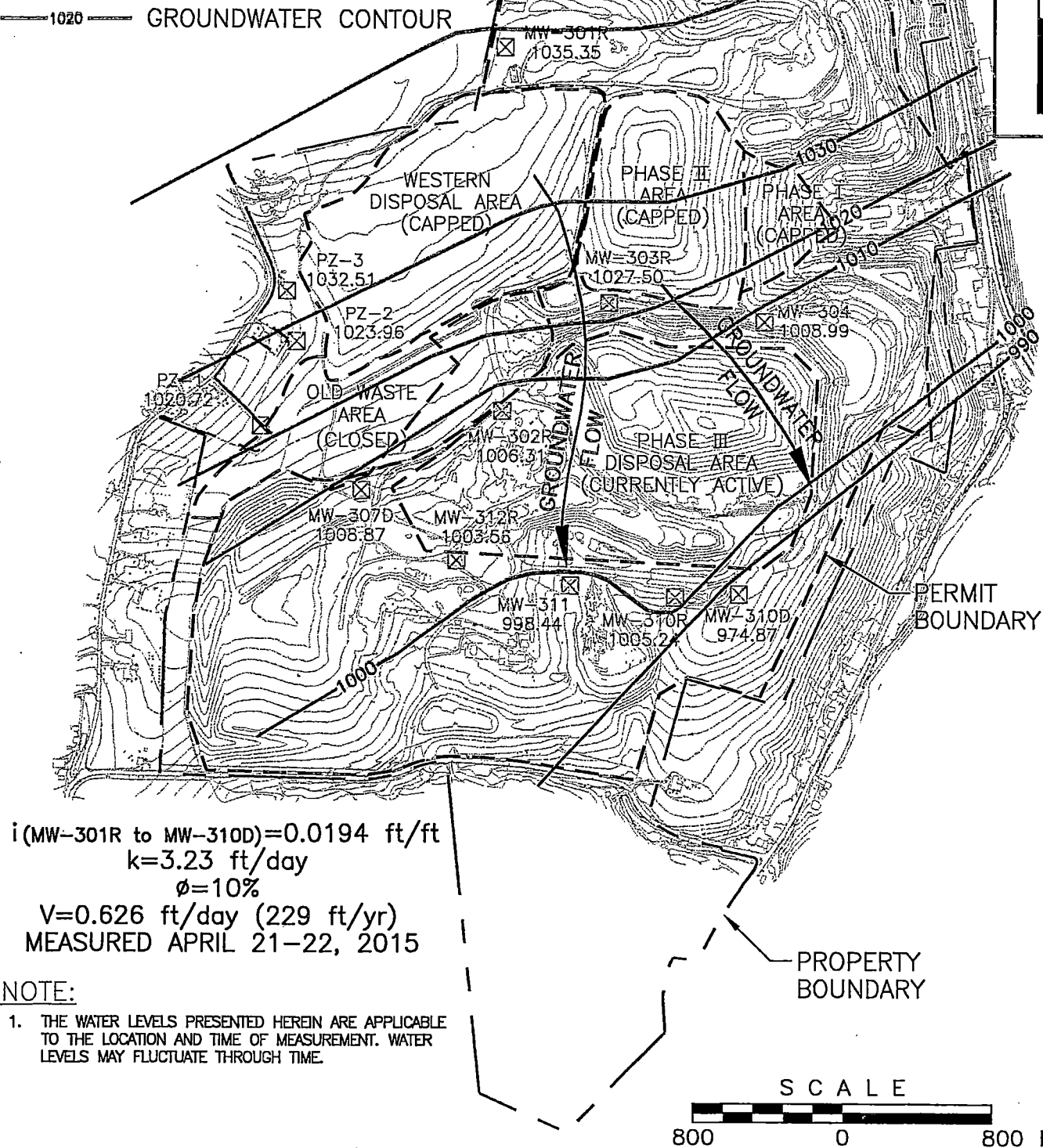
DWN. BY: JHG	SCALE: AS SHOWN	DATE: 08/19/05	PROJECT NO: 050558	FIGURE NO. 1
CHKD. BY: <i>Rst</i>				

## LEGEND

☒ MW-304  
1008.99

GROUNDWATER MONITORING  
WELL WITH GROUNDWATER  
ELEVATION IN FEET ABOVE  
MEAN SEA LEVEL

-1020- GROUNDWATER CONTOUR



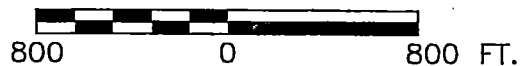
i(MW-301R to MW-310D)=0.0194 ft/ft  
k=3.23 ft/day  
 $\phi=10\%$

V=0.626 ft/day (229 ft/yr)  
MEASURED APRIL 21-22, 2015

NOTE:

1. THE WATER LEVELS PRESENTED HEREIN ARE APPLICABLE TO THE LOCATION AND TIME OF MEASUREMENT. WATER LEVELS MAY FLUCTUATE THROUGH TIME.

SCALE



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Cincinnati, OH • Columbus, OH • Indianapolis, IN • Nashville, TN

BENWOOD LIMESTONE  
POTENTIOMETRIC MAP  
KELLY RUN LANDFILL  
PERMIT NO. 100663

DWN. BY: JHG

**SCALE:**

DATE:

PROJECT NO.:

CHKD. BY: TEA

AS SHOWN

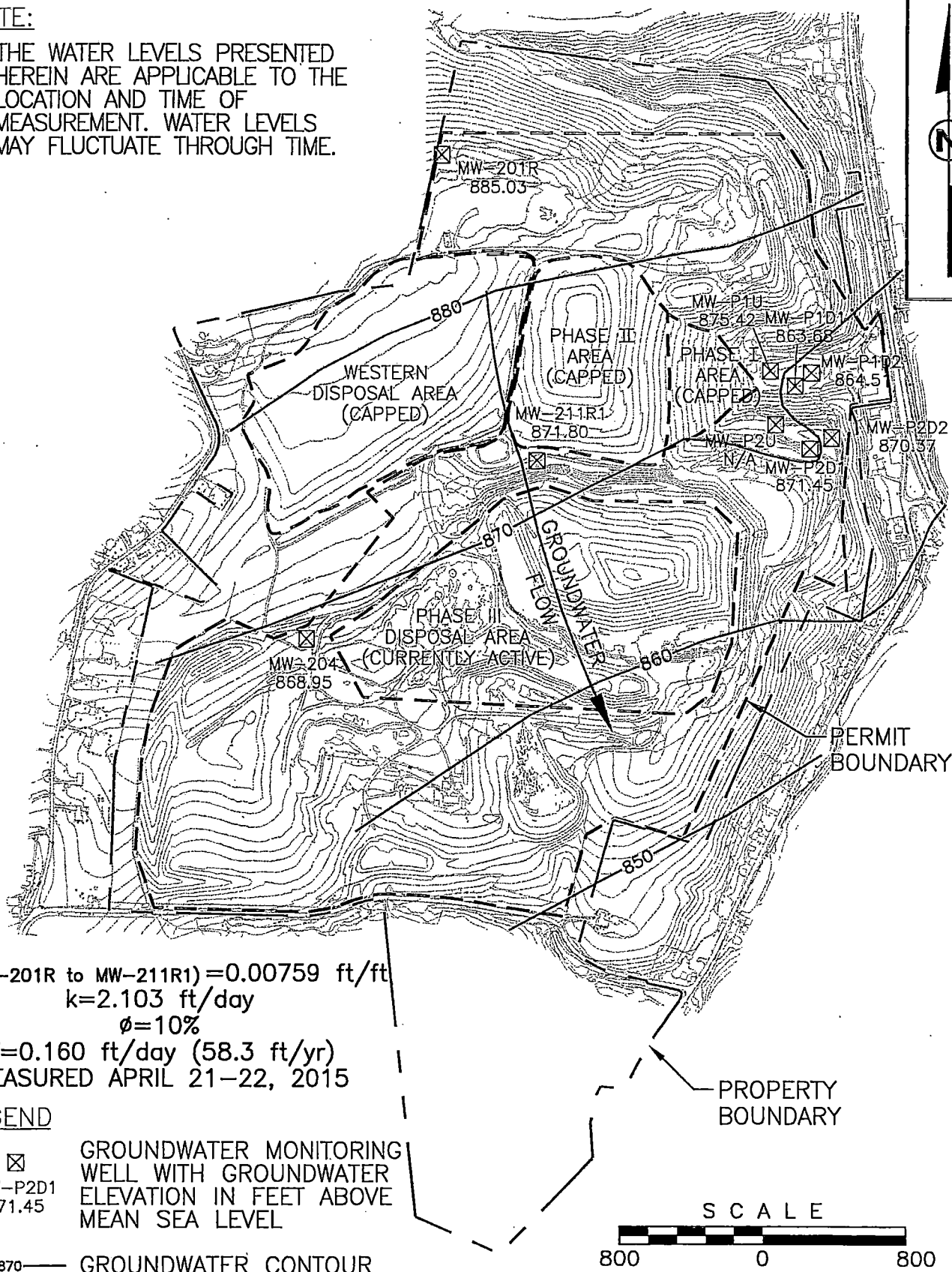
07/07/15

050-558.0215

FIGURE NO. 2

**NOTE:**

1. THE WATER LEVELS PRESENTED HEREIN ARE APPLICABLE TO THE LOCATION AND TIME OF MEASUREMENT. WATER LEVELS MAY FLUCTUATE THROUGH TIME.



$i$  (MW-201R to MW-211R1) = 0.00759 ft/ft  
 $k$  = 2.103 ft/day  
 $\phi$  = 10%  
 $V$  = 0.160 ft/day (58.3 ft/yr)  
 MEASURED APRIL 21-22, 2015

**LEGEND**

- GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL  
 MW-P2D1 871.45
- 870 GROUNDWATER CONTOUR

SCALE

800 0 800 FT.



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Cincinnati, OH • Columbus, OH • Indianapolis, IN • Nashville, TN

PITTSBURGH COAL  
 POTENTIOMETRIC MAP  
 KELLY RUN LANDFILL  
 PERMIT NO. 100663

DWN. BY: JHG

SCALE:

DATE:

PROJECT NO.:

CHKD. BY: TEA

AS SHOWN

07/07/15

050-558.0215

FIGURE NO. 3

FIGURE 4

KELLY RUN SANITATION, INC  
BENWOOD LIMESTONE  
TIME SERIES PLOTS

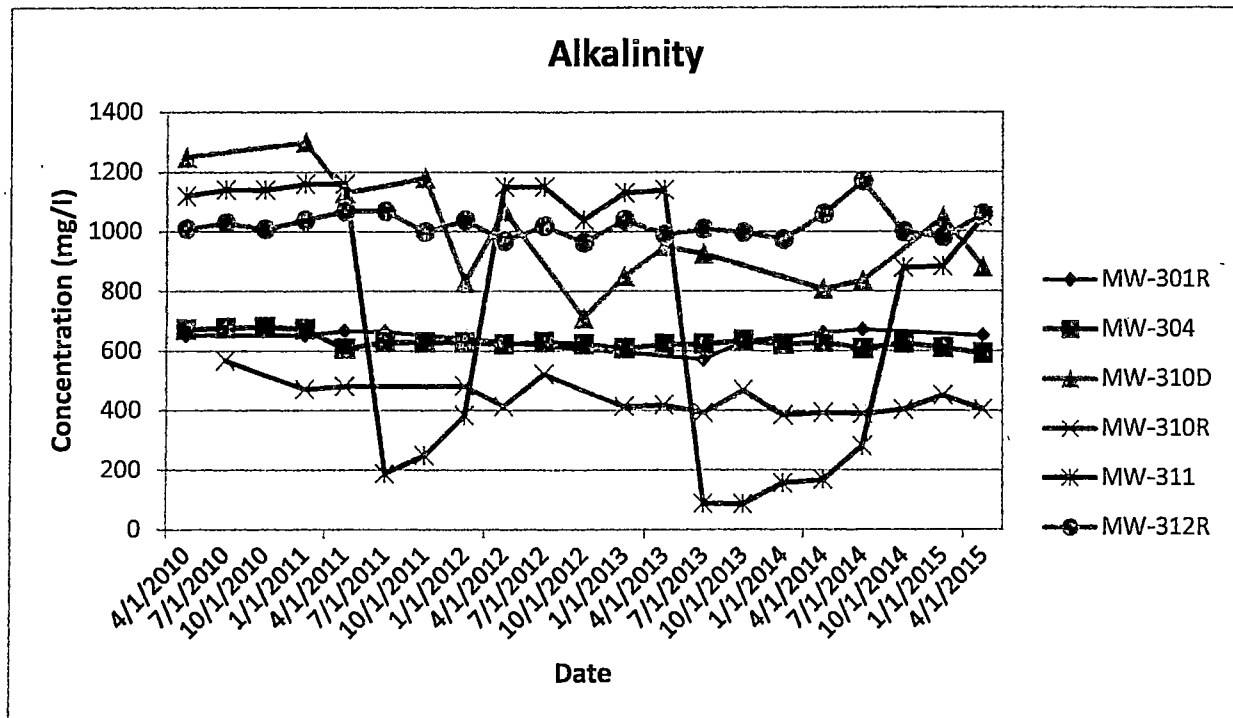
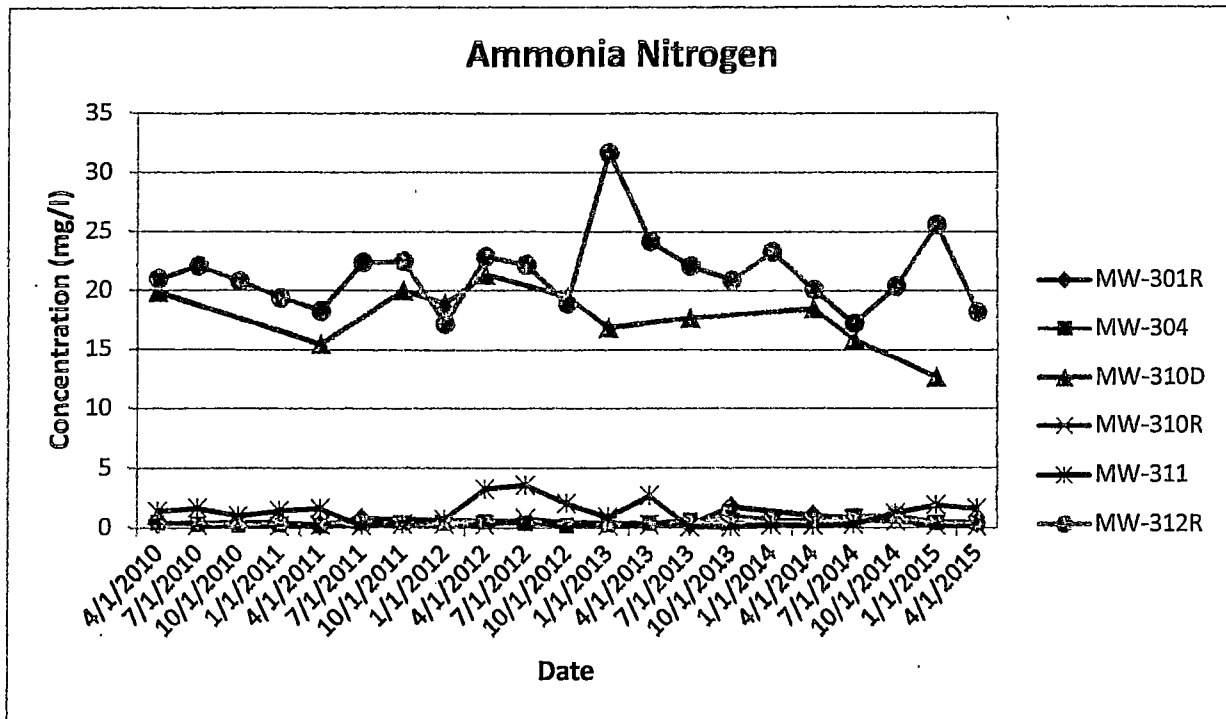


FIGURE 4

KELLY RUN SANITATION, INC  
BENWOOD LIMESTONE  
TIME SERIES PLOTS

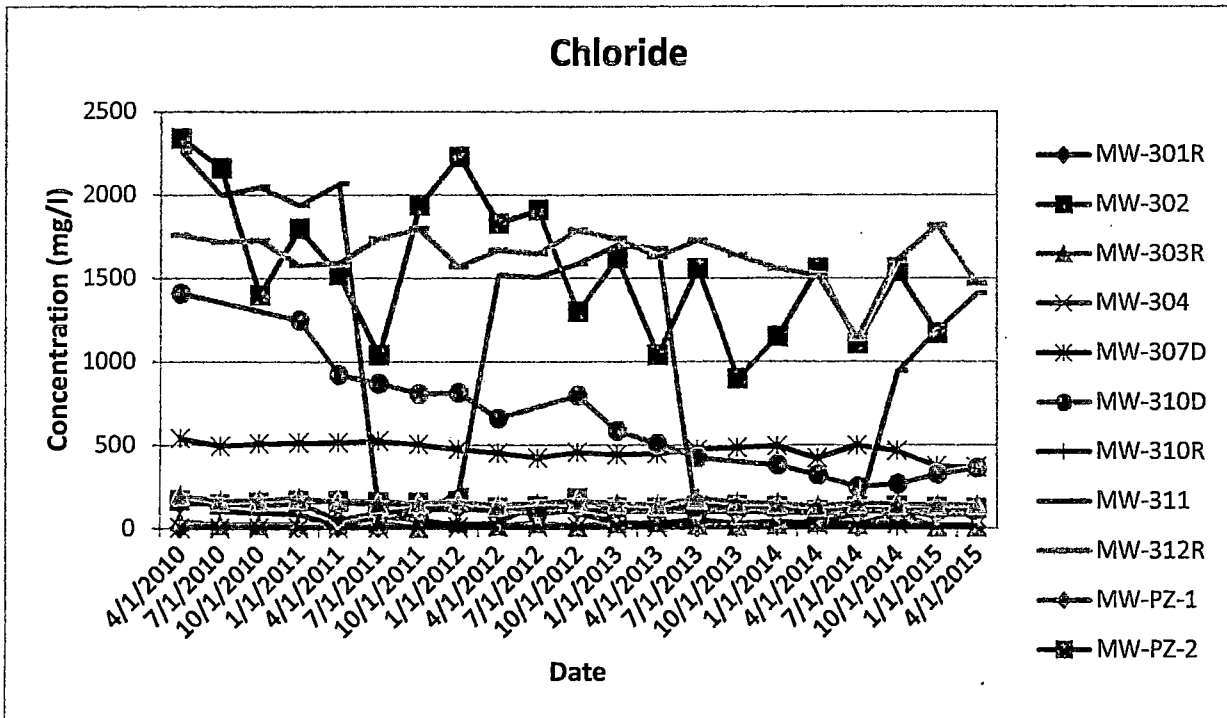
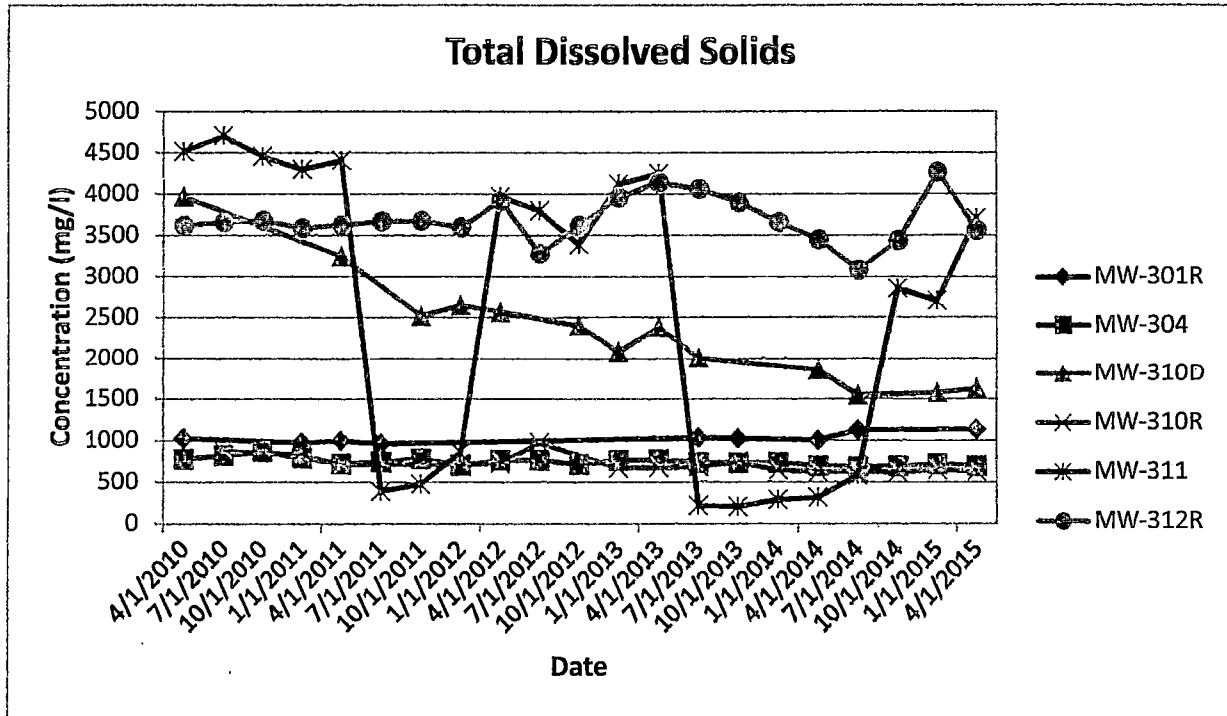


FIGURE 4

KELLY RUN SANITATION, INC  
BENWOOD LIMESTONE  
TIME SERIES PLOTS

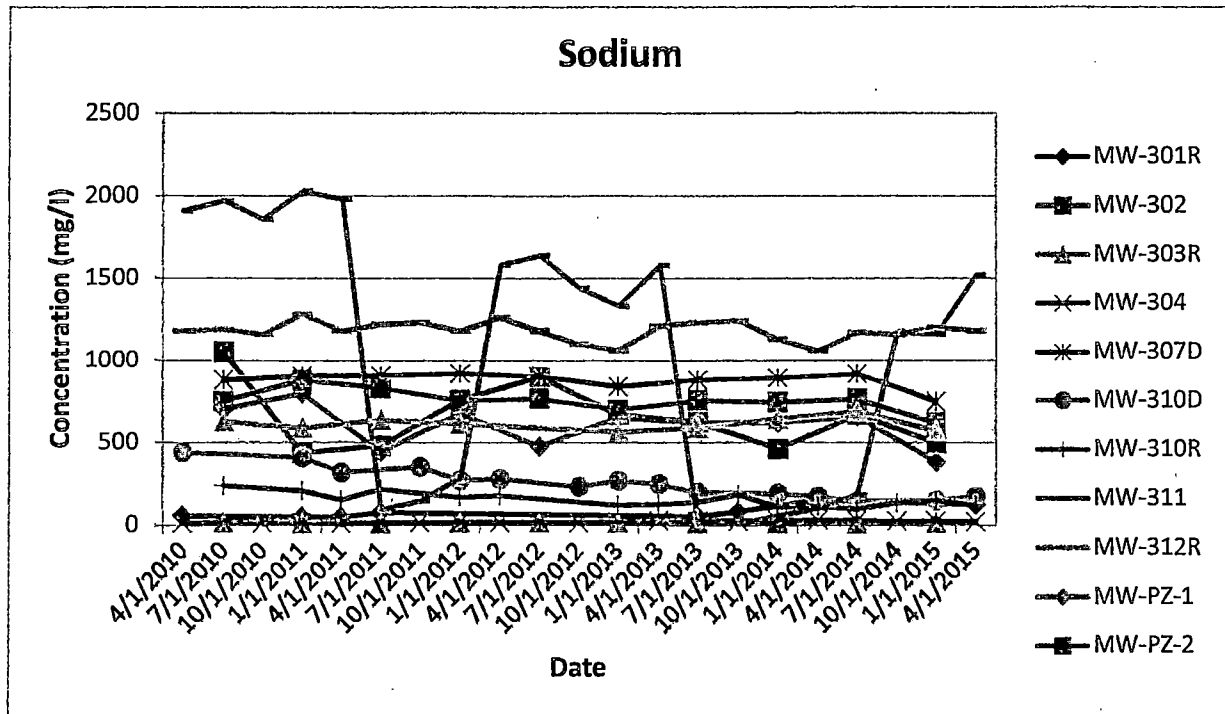


FIGURE 5

KELLY RUN SANITATION, INC  
PITTSBURGH COAL  
TIME SERIES PLOTS

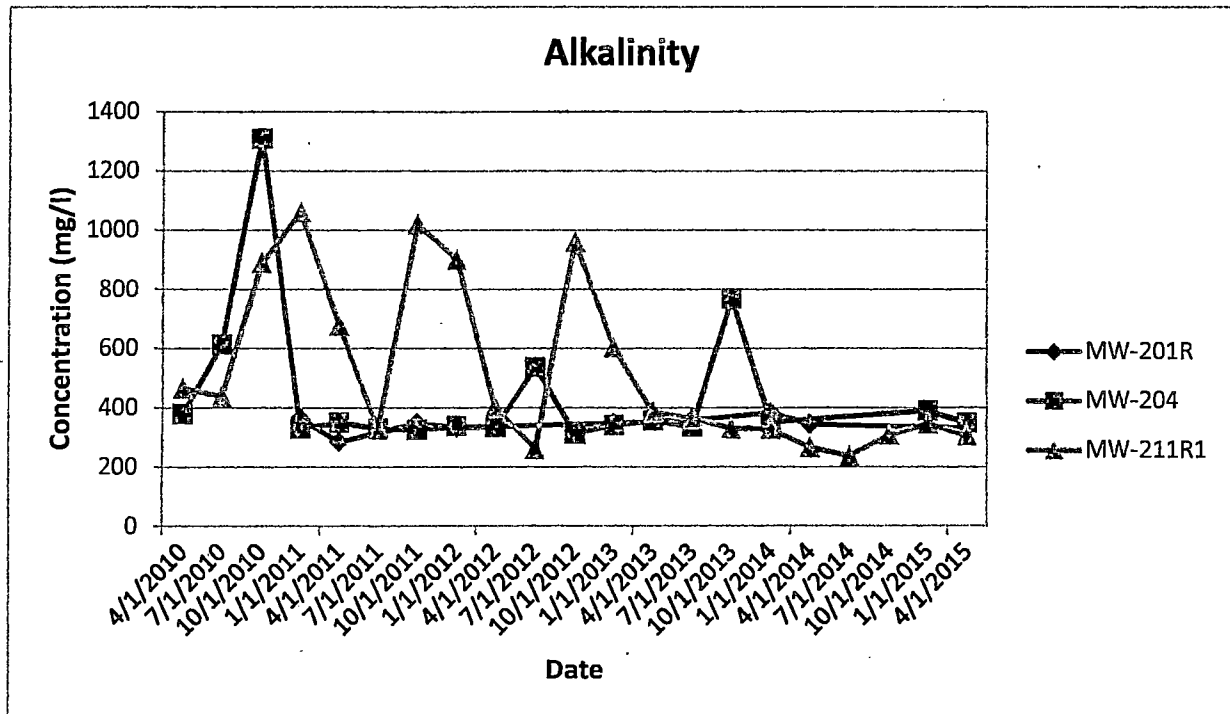
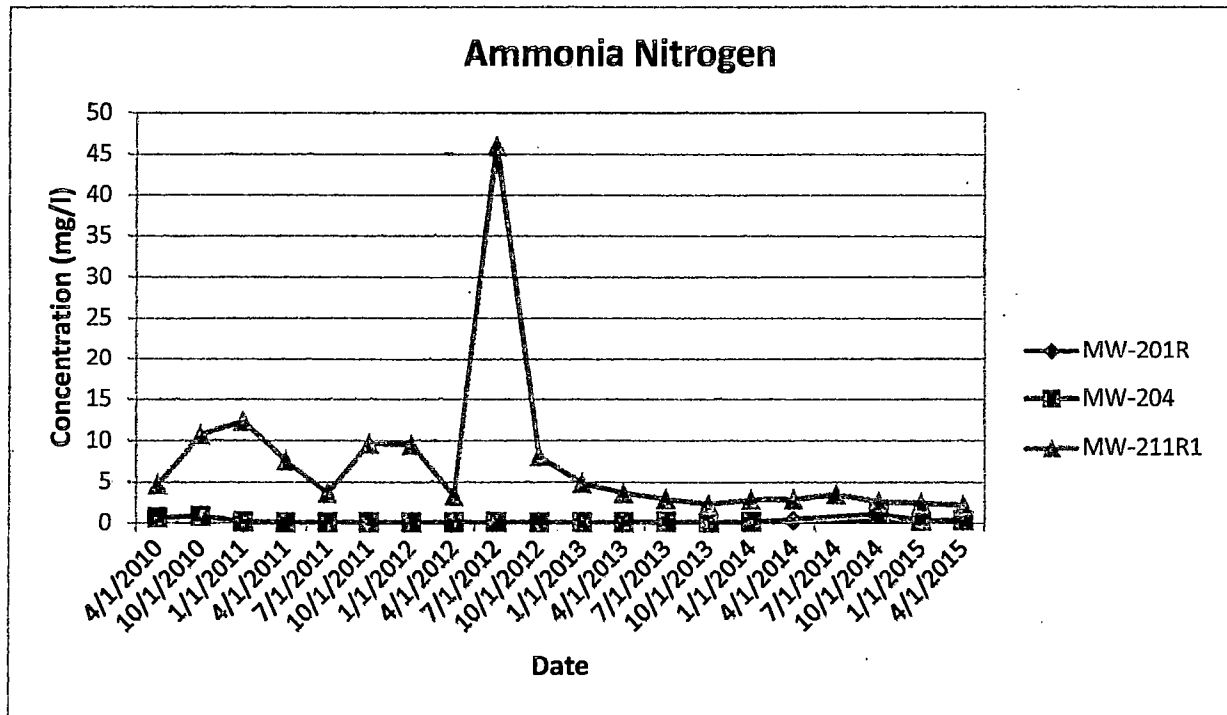


FIGURE 5

KELLY RUN SANITATION, INC  
PITTSBURGH COAL  
TIME SERIES PLOTS

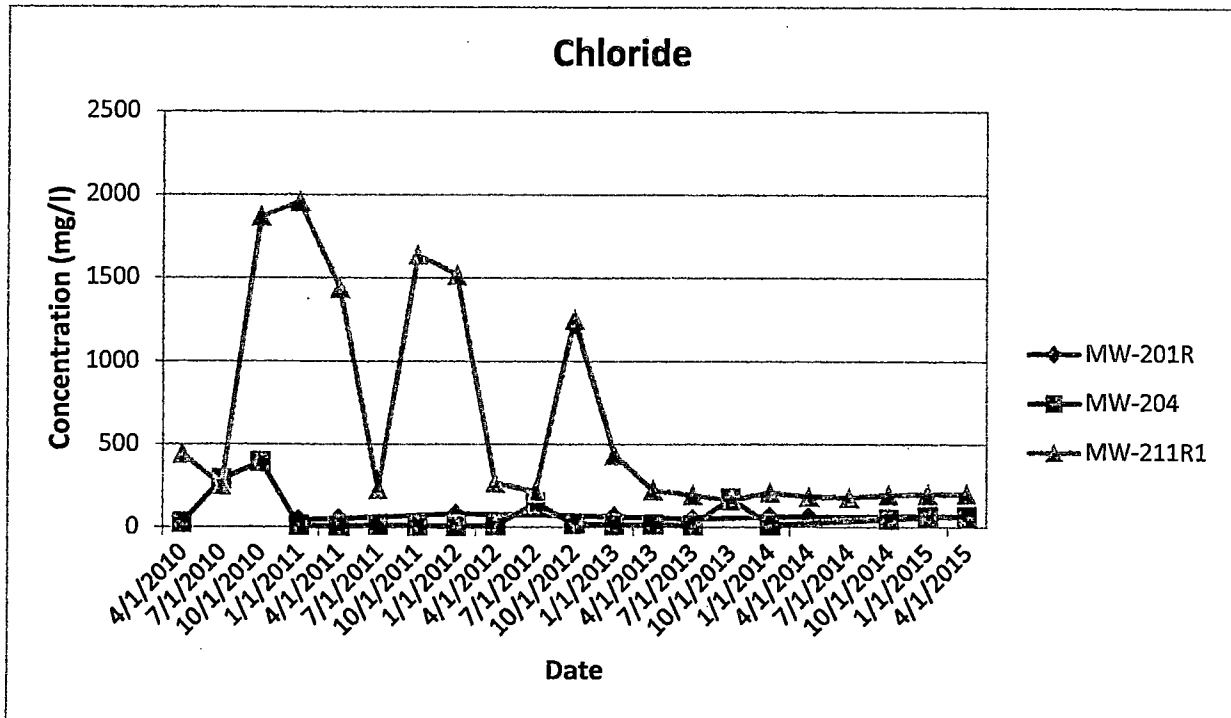
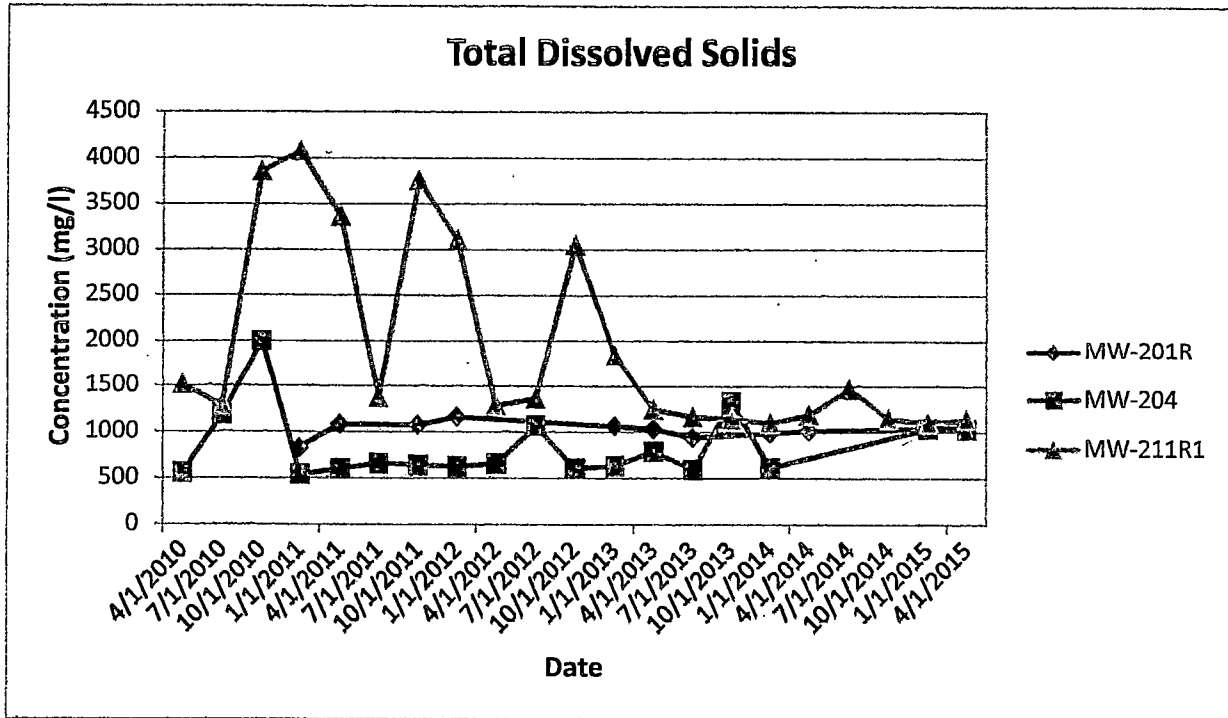




FIGURE 5

KELLY RUN SANITATION, INC  
PITTSBURGH COAL  
TIME SERIES PLOTS

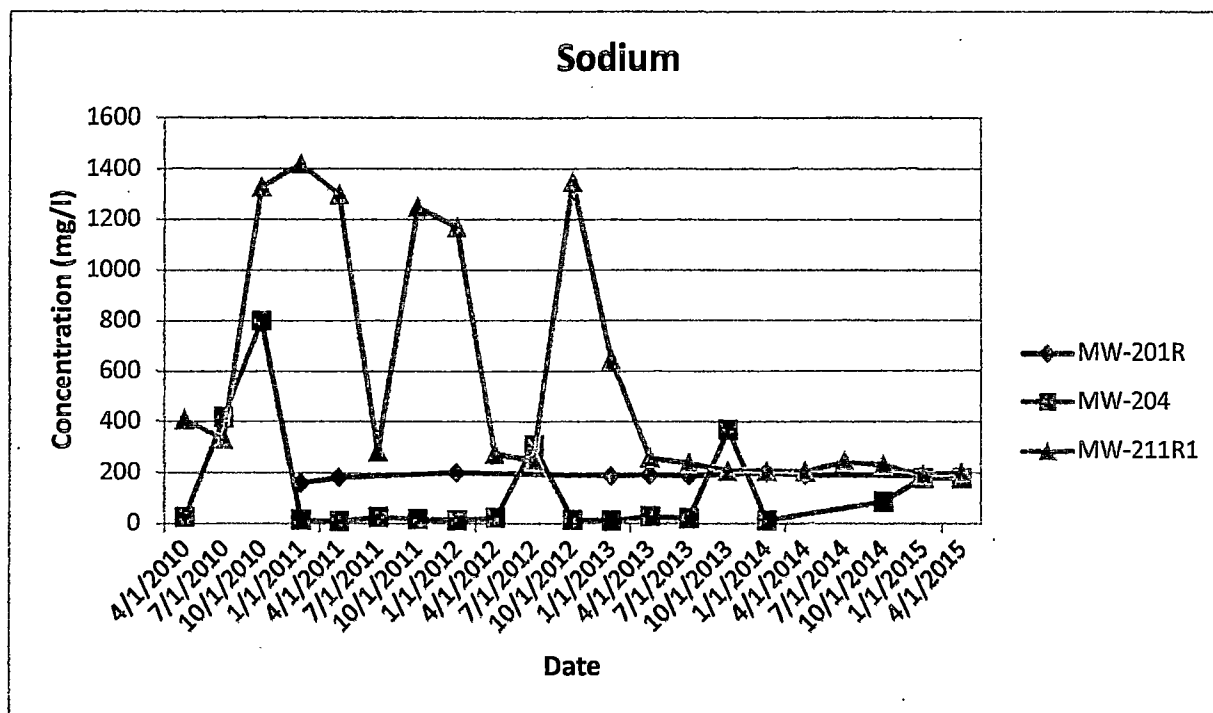


FIGURE 6

KELLY RUN SANITATION, INC  
LEACHATE POND  
TIME SERIES PLOTS

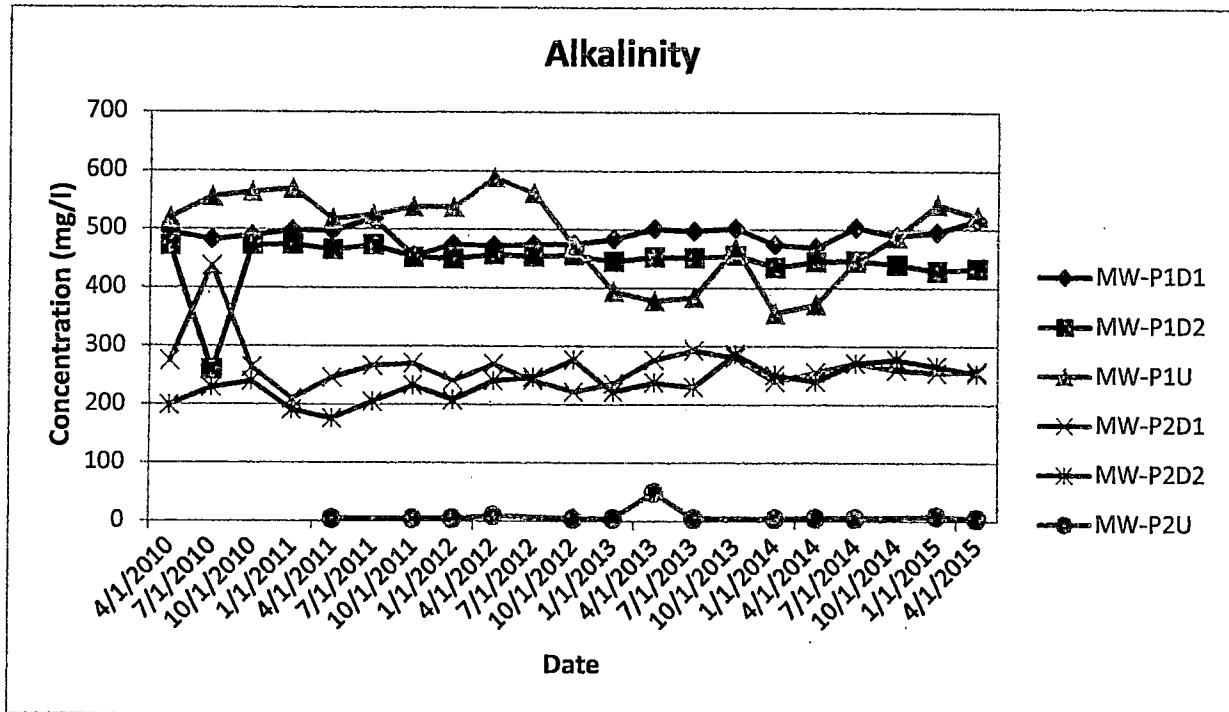
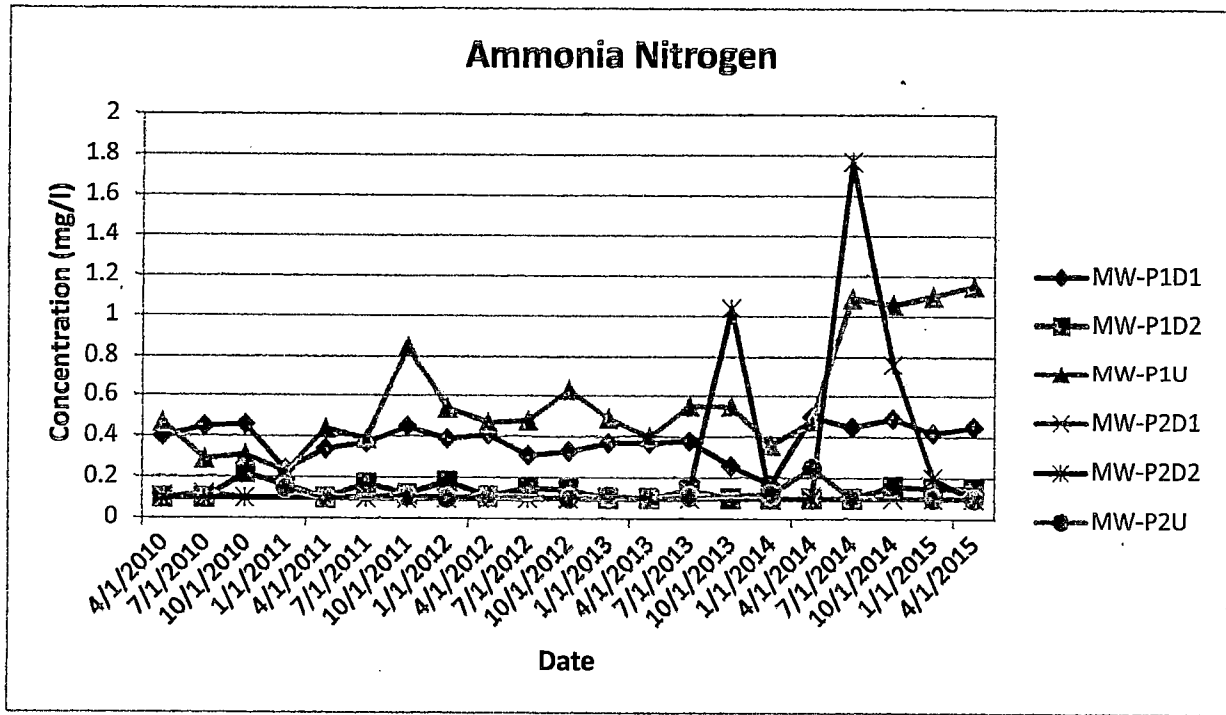


FIGURE 6

KELLY RUN SANITATION, INC  
LEACHATE POND  
TIME SERIES PLOTS

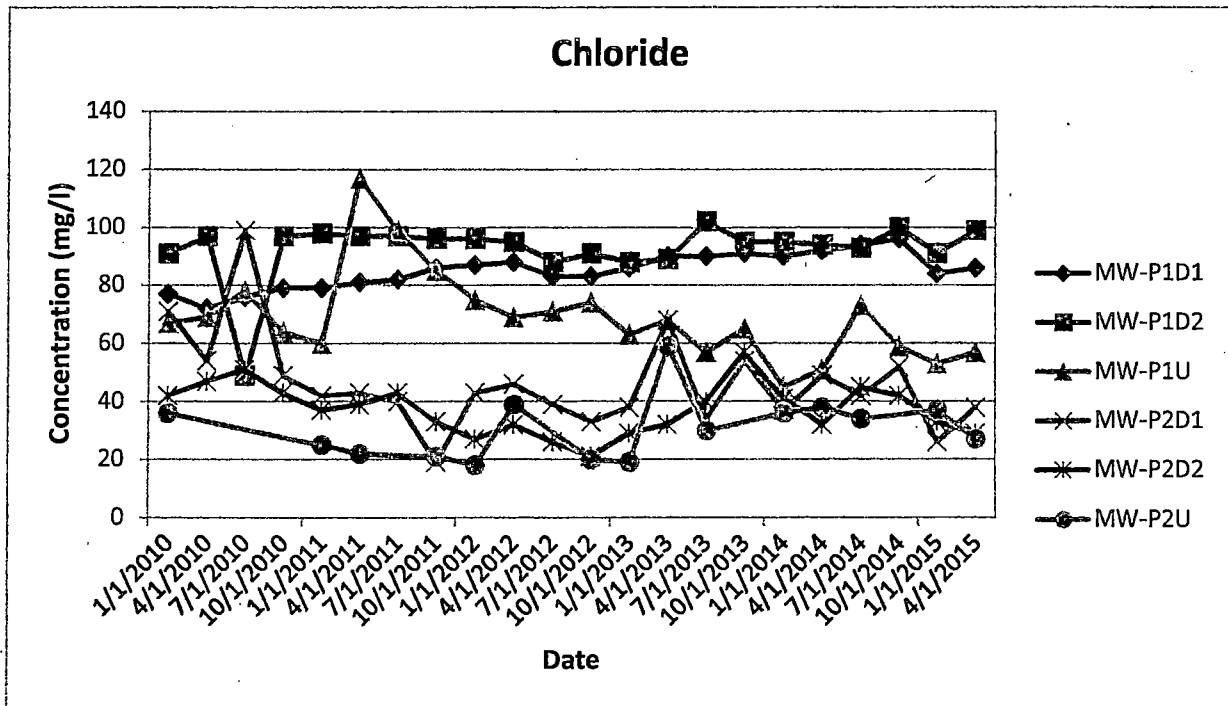
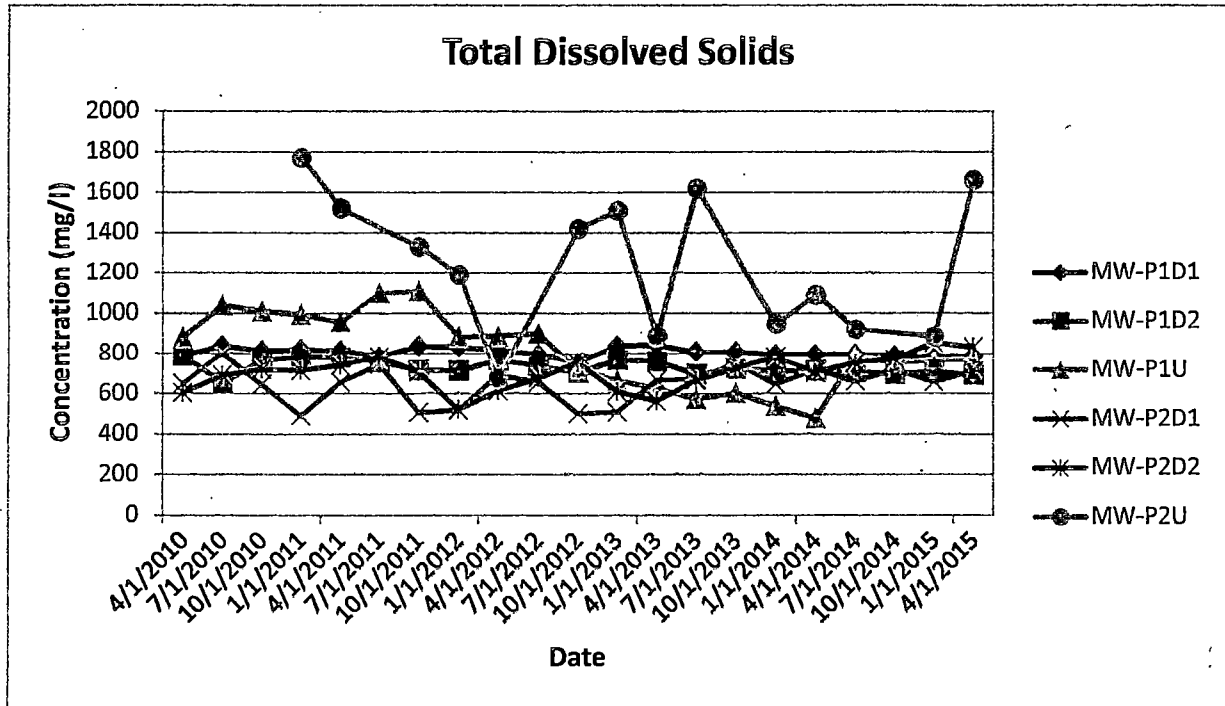
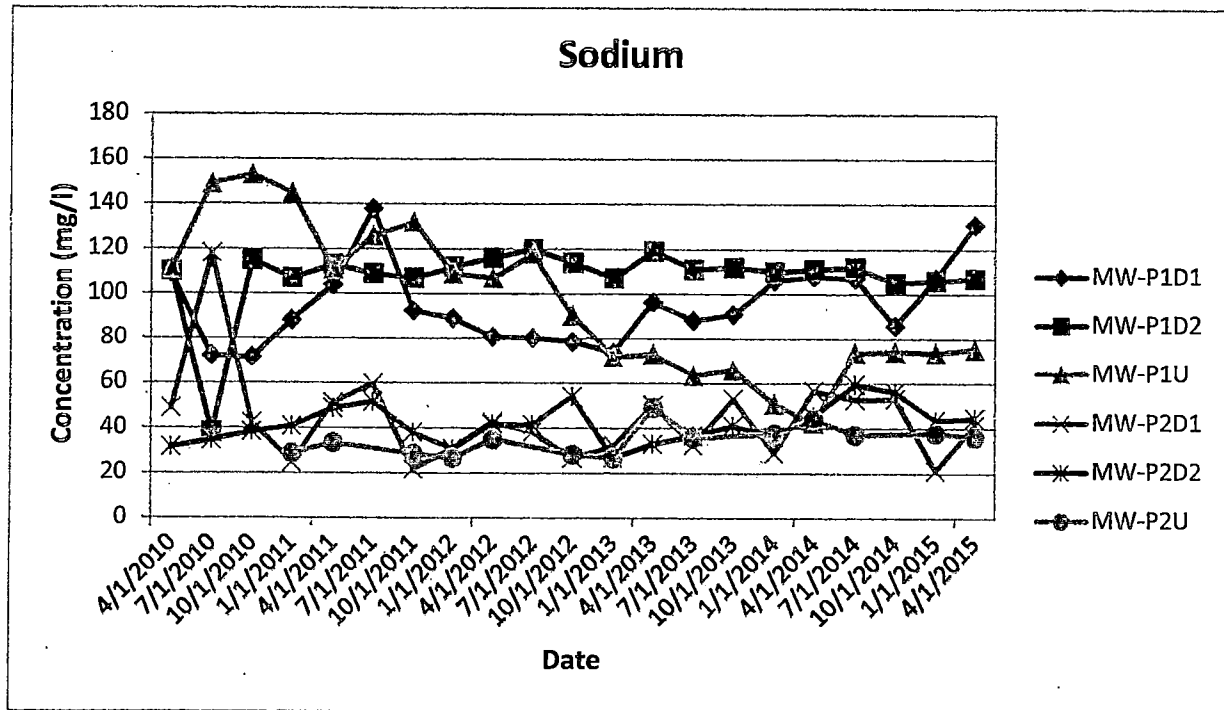


FIGURE 6

KELLY RUN SANITATION, INC  
LEACHATE POND  
TIME SERIES PLOTS



## TABLE OF CONTENTS

### VOLUME I

Appendix A	Second Quarter 2015 Groundwater Form 19 Quarterly Results
Appendix B	Second Quarter 2015 Surface Water Form 19 Quarterly Results and Spring Form 19 Quarterly Results
Appendix C	Second Quarter 2015 Quality Assurance/ Quality Control and Field Parameters

### VOLUME II

Appendix D	Second Quarter 2015 Form 50 Municipal Waste Landfill Leachate Analysis
Appendix E	Second Quarter 2015 Methane Probe Monitoring

### VOLUME III

Appendix F	Second Quarter 2015 Dust Fall Analysis
Appendix G	Second Quarter 2015 Road Watering Report

WASTE MANAGEMENT

KELLY RUN SANITATION, INC. LANDFILL  
Forward Township, Allegheny County

PADEP ID No. 100663

APPENDIX A

SECOND QUARTER 2015

GROUNDWATER MONITORING  
FORM 19 RESULTS

Submitted  
August 2015



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-201R

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 15 ' 13 . 92 "

Longitude: 79 ° 53 ' 14 . 00 "

Depth to Water Level: 273.10 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 2.17 ft.

Elevation of Water Level: 885.03 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 2.18 gal.

Total Well Depth: 276.44 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.70

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 14:40

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B42-002

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear.

I.D. No. 100663
Monitoring Point No. MW-201R
Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.29	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	330	SM 4500-CO2 D
Calcium, Total*	106	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	15	HACH 8000
Chloride*	67	EPA 300.0
Flouride	0.2	EPA 300.0
Iron (µg/l), Total	1970	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	44.1	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	800	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	6.72	SM 4500 H+B
pH (standard units), Laboratory*	7.49	SM 4500-H+ B
Potassium, Total*	3.6	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	189	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1584	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1460	EPA 120.1
Sulfate*	404	EPA 300.0
Total Alkalinity*	331	ASTM D 1067-06
Total Dissolved Solids	1050	SM 2540 C
Total Organic Carbon*	1.2	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	27.9	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
Remaining quarterly samples only require total metals analysis.



I.D. No. 100663

Monitoring Point No. MW-201R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-201R

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

<sup>†</sup> Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-204R

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 48 .00 "

Longitude: 79 ° 53 ' 23 .00 "

Depth to Water Level: 294.30 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: 868.95 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 10.25 gal.

Total Well Depth: 310.00 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.06

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 16:45

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B42-003

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Cloudy - Lightly tan.

I.D. No. 100663

Monitoring Point No. MW-204R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.40	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	345	SM 4500-CO2 D
Calcium, Total*	131	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	64	EPA 300.0
Flouride	0.4	EPA 300.0
Iron (µg/l), Total	21200	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	46.6	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	1200	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	7.25	SM 4500 H+B
pH (standard units), Laboratory*	7.98	SM 4500-H+ B
Potassium, Total*	4.9	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	178	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1573	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1430	EPA 120.1
Sulfate*	387	EPA 300.0
Total Alkalinity*	348	ASTM D 1067-06
Total Dissolved Solids	1030	SM 2540 C
Total Organic Carbon*	1.5	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	219	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663  
 Monitoring Point No. MW-204R  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-204R

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-211R1

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 57 " 77 "

Longitude: 79 ° 53 ' 16 " 70 "

Depth to Water Level: 192.20 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 2.71 ft.

Elevation of Water Level: 871.8 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 3.08 gal.

Total Well Depth: 196.92 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.40

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:20

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B42-001

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.

I.D. No. 100663

Monitoring Point No. MW-211R1

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	2.25	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	306	SM 4500-CO2 D
Calcium, Total*	123	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	15	HACH 8000
Chloride*	203	EPA 300.0
Flouride	0.2	EPA 300.0
Iron (µg/l), Total	32700	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	45.8	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	630	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	6.48	SM 4500 H+B
pH (standard units), Laboratory*	6.85	SM 4500-H+ B
Potassium, Total*	5.7	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	201	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1877	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1750	EPA 120.1
Sulfate*	308	EPA 300.0
Total Alkalinity*	306	ASTM D 1067-06
Total Dissolved Solids	1140	SM 2540 C
Total Organic Carbon*	4.7	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	0.6	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.



I.D. No. 100663  
 Monitoring Point No. MW-211R1  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-211R1

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. **Metals** (Enter all data in  $\mu\text{g/l}$ ) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-301R

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 15 ' 10 " 90 "

Longitude: 79 ° 53 ' 14 " 30 "

Depth to Water Level: 134.32 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 2.00 ft.

Elevation of Water Level: 1035.35 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 1 gal.

Total Well Depth: 135.85 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 1.00

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 08:10

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B42-004

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear.

I.D. No. 100663

Monitoring Point No. MW-301R

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.41	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	647	SM 4500-CO2 D
Calcium, Total*	156	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	16	HACH 8000
Chloride*	6	EPA 300.0
Flouride	< 0.1	EPA 300.0
Iron (µg/l), Total	3810	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	111	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	110	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.60	EPA 300.0
pH (standard units), Field.*	6.03	SM 4500 H+B
pH (standard units), Laboratory*	7.95	SM 4500-H+ B
Potassium, Total*	3.7	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	127	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1737	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1560	EPA 120.1
Sulfate*	354	EPA 300.0
Total Alkalinity*	652	ASTM D 1067-06
Total Dissolved Solids	1140	SM 2540 C
Total Organic Carbon*	1.5	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	54.8	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4). Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-301R

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-301R

Sample Date 04/22/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

**1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-302R

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 52 " 18 "

Longitude: 79 ° 53 ' 13 " 77 "

Depth to Water Level: 148.10 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.79 ft.

Elevation of Water Level: 1006.31 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 14.47 gal.

Total Well Depth: 170.26 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.40

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 14:10

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B41-004

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear - Slight odor.

I.D. No. 100663  
 Monitoring Point No. MW-302R  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*		
Calcium, Total*		
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	1200	EPA 300.0
Flouride		
Iron (µg/l), Total		
Iron (µg/l), Dissolved**		
Magnesium, Total*		
Magnesium, Dissolved**		
Manganese (µg/l), Total		
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field *	6.58	SM 4500 H+B
pH (standard units), Laboratory*	7.13	SM 4500-H+ B
Potassium, Total*		
Potassium, Dissolved**		
Sodium, Total*		
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	5133	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	6210	EPA 120.1
Sulfate*		
Total Alkalinity*		
Total Dissolved Solids		
Total Organic Carbon*	53.2	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.



I.D. No. 100663

Monitoring Point No. MW-302R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	24.6	EPA 8260
1,2-Dibromoethane		
1,1-Dichloroethane		
1,1-Dichloroethene		
1,2-Dichloroethane		
Cis-1,2-Dichloroethene		
Trans-1,2-Dichloroethene		
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride		
Tetrachloroethene		
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane		
Trichloroethene		
Vinyl chloride		
Xylene	< 5.0 - - -	EPA 8260 - - -

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663  
 Monitoring Point No. MW-302R  
 Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

<sup>†</sup> Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-303R

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 55 " 61 "

Longitude: 79 ° 53 ' 4 " 62 "

Depth to Water Level: 38.50 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: 1027.50 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: 63.20 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:30

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B41-001

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.

I.D. No. 100663  
 Monitoring Point No. MW-303R  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*		
Calcium, Total*		
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	8	EPA 300.0
Flouride		
Iron (µg/l), Total		
Iron (µg/l), Dissolved**		
Magnesium, Total*		
Magnesium, Dissolved**		
Manganese (µg/l), Total		
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field *	6.79	SM 4500 H+B
pH (standard units), Laboratory*	7.63	SM 4500-H+ B
Potassium, Total*		
Potassium, Dissolved**		
Sodium, Total*		
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	952	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	669	EPA 120.1
Sulfate*		
Total Alkalinity*		
Total Dissolved Solids		
Total Organic Carbon*	2.4	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-303R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane		
1,1-Dichloroethane		
1,1-Dichloroethene		
1,2-Dichloroethane		
Cis-1,2-Dichloroethene		
Trans-1,2-Dichloroethene		
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride		
Tetrachloroethene		
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane		
Trichloroethene		
Vinyl chloride		
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-303R

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-304

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 57 " 06 "

Longitude: 79 ° 52 ' 55 " 85 "

Depth to Water Level: 46.15 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.33 ft.

Elevation of Water Level: 1008.99 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 11.75 gal.

Total Well Depth: 64.15 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.10

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 11:08

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B41-002

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear - Slight odor.

I.D. No. 100663

Monitoring Point No. MW-304

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.44	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	590	SM 4500-CO2 D
Calcium, Total*	156	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	17	EPA 300.0
Flouride	< 0.1	EPA 300.0
Iron (µg/l), Total	< 50	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	68.8	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	370	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	6.79	SM 4500 H+B
pH (standard units), Laboratory*	7.58	SM 4500-H+ B
Potassium, Total*	3.7	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	22.6	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1180	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1140	EPA 120.1
Sulfate*	76	EPA 300.0
Total Alkalinity*	592	ASTM D 1067-06
Total Dissolved Solids	696	SM 2540 C
Total Organic Carbon*	2.0	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	0.7	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.



I.D. No. 100663  
 Monitoring Point No. MW-304  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663  
 Monitoring Point No. MW-304  
 Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

<sup>†</sup> Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-307

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 47 . 90 "

Longitude: 79 ° 53 ' 23 . 41 "

Depth to Water Level: 156.20 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.96 ft.

Elevation of Water Level: 1008.87 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 7.84 gal.

Total Well Depth: 168.20 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.40

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 13:45

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B41-003

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.

I.D. No. 100663  
 Monitoring Point No. MW-307  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*		
Calcium, Total*		
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	367	EPA 300.0
Flouride		
Iron (µg/l), Total		
Iron (µg/l), Dissolved**		
Magnesium, Total*		
Magnesium, Dissolved**		
Manganese (µg/l), Total		
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field *	7.19	SM 4500 H+B
pH (standard units), Laboratory*	7.75	SM 4500-H+ B
Potassium, Total*		
Potassium, Dissolved**		
Sodium, Total*		
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	3823	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	3540	EPA 120.1
Sulfate*		
Total Alkalinity*		
Total Dissolved Solids		
Total Organic Carbon*	17.5	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-307

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane		
1,1-Dichloroethane		
1,1-Dichloroethene		
1,2-Dichloroethane		
Cis-1,2-Dichloroethene		
Trans-1,2-Dichloroethene		
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride		
Tetrachloroethene		
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane		
Trichloroethene		
Vinyl chloride		
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663  
 Monitoring Point No. MW-307  
 Sample Date 04/21/15

FORM 19  
 ANNUAL WATER QUALITY ANALYSES

1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-310D

☒ Well ☐ Spring ☐ Stream ☐ Other  
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 42 " 80 "

Longitude: 79 ° 53 ' 1 " 48 "

Depth to Water Level: 124.55 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.90 ft.

Elevation of Water Level: 974.87 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 2.8 gal.

Total Well Depth: 128.84 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.90

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 11:00

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B45-003

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Cloudy - Slight odor.

I.D. No. 100663  
 Monitoring Point No. MW-310D  
 Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*	< 5	SM 4500-CO2 D
Calcium, Total*	605	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	363	EPA 300.0
Flouride	0.3	EPA 300.0
Iron (µg/l), Total	3730	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	3.2	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	150	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field *	12.38	SM 4500 H+B
pH (standard units), Laboratory*	12.3	SM 4500-H+ B
Potassium, Total*	17.0	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	175	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	5150	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	3690	EPA 120.1
Sulfate*	< 10	EPA 300.0
Total Alkalinity*	881	ASTM D 1067-06
Total Dissolved Solids	1630	SM 2540 C
Total Organic Carbon*	29.1	SM 5310 C
Total Phenolics (µg/l)		
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.



I.D. No. 100663

Monitoring Point No. MW-310D

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-310R

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 42 . 80 "

Longitude: 79 ° 53 ' 1 . 48 "

Depth to Water Level: 94.15 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 2.66 ft.

Elevation of Water Level: 1005.24 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 9.53 gal.

Total Well Depth: 108.81 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.15

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 11:45

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B46-001

Final Lab Analysis Completion Date: 05/07/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear - Slight odor.

I.D. No. 100663  
 Monitoring Point No. MW-310R  
 Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.14	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	398	SM 4500-CO2 D
Calcium, Total*	66.7	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	18	HACH 8000
Chloride*	7	EPA 300.0
Flouride	0.1	EPA 300.0
Iron (µg/l), Total	360	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	44.3	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	30	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	7.44	SM 4500 H+B
pH (standard units), Laboratory*	8.27	SM 4500-H+ B
Potassium, Total*	2.5	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	119	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1056	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	972	EPA 120.1
Sulfate*	139	EPA 300.0
Total Alkalinity*	405	ASTM D 1067-06
Total Dissolved Solids	632	SM 2540 C
Total Organic Carbon*	1.8	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	6.4	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-310R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-310R

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-311D

☒ Well ☐ Spring ☐ Stream ☐ Other  
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 43 " 39 "

Longitude: 79 ° 53 ' 18 " 75 "

Depth to Water Level: 101.93 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.33 ft.

Elevation of Water Level: 998.44 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 9.74 gal.

Total Well Depth: 116.85 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.60

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 12:28

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B46-002

Final Lab Analysis Completion Date: 05/07/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.

I.D. No. 100663

Monitoring Point No. MW-311D

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	1.62	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	1010	SM 4500-CO2 D
Calcium, Total*	34.7	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	110	HACH 8000
Chloride*	1410	EPA 300.0
Flouride	0.3	EPA 300.0
Iron (µg/l), Total	2520	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	14.3	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	210	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	1.74	EPA 300.0
pH (standard units), Field *	8.13	SM 4500 H+B
pH (standard units), Laboratory*	8.60	SM 4500-H+ B
Potassium, Total*	7.6	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	1520	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	6457	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	5970	EPA 120.1
Sulfate*	< 10	EPA 300.0
Total Alkalinity*	1050	ASTM D 1067-06
Total Dissolved Solids	3710	SM 2540 C
Total Organic Carbon*	24.4	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	52.8	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-311D

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



I.D. No. 100663

Monitoring Point No. MW-311D

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals** (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

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Date Received

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**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-312R

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 44 " 40 "

Longitude: 79 ° 53 ' 19 " 70 "

Depth to Water Level: 167.90 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.79 ft.

Elevation of Water Level: 1003.56 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 9.63 gal.

Total Well Depth: 182.65 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.30

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 12:55

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B46-003

Final Lab Analysis Completion Date: 05/07/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_  
Clear.

I.D. No. 100663

Monitoring Point No. MW-312R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	18.2	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	1050	SM 4500-CO2 D
Calcium, Total*	204	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	340	HACH 8000
Chloride*	1470	EPA 300.0
Flouride	0.2	EPA 300.0
Iron (µg/l), Total	1800	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	111	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	50	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	1.89	EPA 300.0
pH (standard units), Field:*	7.15	SM 4500 H+B
pH (standard units), Laboratory*	7.97	SM 4500-H+ B
Potassium, Total*	21.4	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	1180	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	5027	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	5770	EPA 120.1
Sulfate*	< 10	EPA 300.0
Total Alkalinity*	1060	ASTM D 1067-06
Total Dissolved Solids	3560	SM 2540 C
Total Organic Carbon*	49.2	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	13.1	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-312R

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663

Monitoring Point No. MW-312R

Sample Date 04/21/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A: SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B: FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-PZ-1

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 57 . 08 "

Longitude: 79 ° 53 ' 30 . 51 "

Depth to Water Level: 98.60 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.46 ft.

Elevation of Water Level: 1020.72 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 13.53 gal.

Total Well Depth: 119.32 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.20

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 08:30

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B40-001

Final Lab Analysis Completion Date: 04/29/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_  
Clear.

I.D. No. 100663

Monitoring Point No. MW-PZ-1

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*		
Calcium, Total*		
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	89	EPA 300.0
Fluoride		
Iron (µg/l), Total		
Iron (µg/l), Dissolved**		
Magnesium, Total*		
Magnesium, Dissolved**		
Manganese (µg/l), Total		
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field*	7.71	SM 4500 H+B
pH (standard units), Laboratory*	8.30	SM 4500-H+ B
Potassium, Total*		
Potassium, Dissolved**		
Sodium, Total*		
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	2139	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	2050	EPA 120.1
Sulfate*		
Total Alkalinity*		
Total Dissolved Solids		
Total Organic Carbon*	4.2	SM 5310 C
Total Phenolics (µg/l)		
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-PZ-1

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene		
1,2-Dibromoethane		
1,1-Dichloroethane		
1,1-Dichloroethene		
1,2-Dichloroethane		
Cis-1,2-Dichloroethene		
Trans-1,2-Dichloroethene		
Ethyl Benzene		
Methylene chloride		
Tetrachloroethene		
Toluene		
1,1,1,-Trichloroethane		
Trichloroethene		
Vinyl chloride		
Xylene		

† Please indicate detection limit if analyte is not detected.





COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
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**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-PZ-2

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 55 " 38 "

Longitude: 79 ° 53 ' 28 " 12 "

Depth to Water Level: 111.98 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.52 ft.

Elevation of Water Level: 1023.96 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 11.41 gal.

Total Well Depth: 129.45 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.30

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 08:50

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B40-002

Final Lab Analysis Completion Date: 04/29/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_  
Clear.

I.D. No. 100663

Monitoring Point No. MW-PZ-2

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*		
Calcium, Total*		
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	118	EPA 300.0
Flouride		
Iron (µg/l), Total		
Iron (µg/l), Dissolved**		
Magnesium, Total*		
Magnesium, Dissolved**		
Manganese (µg/l), Total		
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field *	7.84	SM 4500 H+B
pH (standard units), Laboratory*	8.38	SM 4500-H+ B
Potassium, Total*		
Potassium, Dissolved**		
Sodium, Total*		
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	2507	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	2530	EPA 120.1
Sulfate*		
Total Alkalinity*		
Total Dissolved Solids		
Total Organic Carbon*	4.5	SM 5310 C
Total Phenolics (µg/l)		
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-PZ-2

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene		
1,2-Dibromoethane		
1,1-Dichloroethane		
1,1-Dichloroethene		
1,2-Dichloroethane		
Cis-1,2-Dichloroethene		
Trans-1,2-Dichloroethene		
Ethyl Benzene		
Methylene chloride		
Tetrachloroethene		
Toluene		
1,1,1-Trichloroethane		
Trichloroethene		
Vinyl chloride		
Xylene		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-PZ-3

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40° 14' 55.38"

Longitude: 79° 53' 28.12"

Depth to Water Level: 91.88 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.25 ft.

Elevation of Water Level: 1032.51 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 12.54 gal.

Total Well Depth: 111.08 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.10

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 09:10

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B40-003

Final Lab Analysis Completion Date: 04/29/2015

Name/Affiliation of Person who Filled out Form: Geochemical Testing

Comments:

Clear.

I.D. No. 100663  
 Monitoring Point No. MW-PZ-3  
 Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*		
Bicarbonate (as CaCO <sub>3</sub> )*		
Calcium, Total*		
Calcium, Dissolved**		
Chemical Oxygen Demand*		
Chloride*	142	EPA 300.0
Flouride		
Iron (µg/l), Total		
Iron (µg/l), Dissolved**		
Magnesium, Total*		
Magnesium, Dissolved**		
Manganese (µg/l), Total		
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen		
pH (standard units), Field:*	7.06	SM 4500 H+B
pH (standard units), Laboratory*	7.63	SM 4500-H+ B
Potassium, Total*		
Potassium, Dissolved**		
Sodium, Total*		
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	2508	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	2510	EPA 120.1
Sulfate*		
Total Alkalinity*		
Total Dissolved Solids		
Total Organic Carbon*	7.0	SM 5310 C
Total Phenolics (µg/l)		
Turbidity (NTU)		

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663  
 Monitoring Point No. MW-PZ-3  
 Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene		
1,2-Dibromoethane		
1,1-Dichloroethane		
1,1-Dichloroethene		
1,2-Dichloroethane		
Cis-1,2-Dichloroethene		
Trans-1,2-Dichloroethene		
Ethyl Benzene		
Methylene chloride		
Tetrachloroethene		
Toluene		
1,1,1,-Trichloroethane		
Trichloroethene		
Vinyl chloride		
Xylene		

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-P1U

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 56 " 90 "

Longitude: 78 ° 52 ' 50 " 00 "

Depth to Water Level: 17.31 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.43 ft.

Elevation of Water Level: 875.42 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 12.69 gal.

Total Well Depth: 36.75 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 1.00

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 16:00

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B28-003

Final Lab Analysis Completion Date: 04/27/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear - Slight odor.

I.D. No. 100663

Monitoring Point No. MW-P1U

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	1.15	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	522	SM 4500-CO2 D
Calcium, Total*	195	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	57	EPA 300.0
Fluoride	0.2	EPA 300.0
Iron (µg/l), Total	970	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	33.3	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	2920	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	6.94	SM 4500 H+B
pH (standard units), Laboratory*	7.32	SM 4500-H+ B
Potassium, Total*	4.1	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	75.4	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1299	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1260	EPA 120.1
Sulfate*	117	EPA 300.0
Total Alkalinity*	523	ASTM D 1067-06
Total Dissolved Solids	774	SM 2540 C
Total Organic Carbon*	3.0	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	7.7	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.



I.D. No. 100663

Monitoring Point No. MW-P1U

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-P1D1

☐ Well ☐ Spring ☐ Stream ☐ Other  
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude:       °       '       "

Longitude:       °       '       "

Depth to Water Level: 27.50 ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: 863.68 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 7.39 gal.

Total Well Depth: 38.82 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.20

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate:                      GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 15:40

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B28-002

Final Lab Analysis Completion Date: 04/27/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: Clear.

I.D. No. 100663

Monitoring Point No. MW-P1D1

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**  
**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.45	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	515	SM 4500-CO2 D
Calcium, Total*	135	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	86	EPA 300.0
Fluoride	0.3	EPA 300.0
Iron (µg/l), Total	810	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	41.6	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	290	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field*	7.26	SM 4500 H+B
pH (standard units), Laboratory*	7.38	SM 4500-H+ B
Potassium, Total*	2.3	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	131	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1353	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1340	EPA 120.1
Sulfate*	98	EPA 300.0
Total Alkalinity*	516	ASTM D 1067-06
Total Dissolved Solids	790	SM 2540 C
Total Organic Carbon*	1.8	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	19.2	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4). Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-P1D1

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-P1D2

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 15 ' 16 " 00 "

Longitude: 79 ° 52 ' 48 " 00 "

Depth to Water Level: 23.92 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: 864.51 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 11.88 gal.

Total Well Depth: 42.12 ft.

Sampling Method: ☐ Pumped ☒ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.30

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 15:25

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B28-001

Final Lab Analysis Completion Date: 04/27/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_  
Clear.

I.D. No. 100663

Monitoring Point No. MW-P1D2

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.15	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	432	SM 4500-CO2 D
Calcium, Total*	128	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	99	EPA 300.0
Fluoride	< 0.1	EPA 300.0
Iron (µg/l), Total	50	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	34.9	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	840	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.59	EPA 300.0
pH (standard units), Field *	6.95	SM 4500 H+B
pH (standard units), Laboratory*	7.21	SM 4500-H+ B
Potassium, Total*	2.4	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	107	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1236	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1220	EPA 120.1
Sulfate*	97	EPA 300.0
Total Alkalinity*	433	ASTM D 1067-06
Total Dissolved Solids	694	SM 2540 C
Total Organic Carbon*	2.9	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	0.9	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-P1D2

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-P2U

☒ Well ☐ Spring ☐ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 58 " 90 "

Longitude: 79 ° 52 ' 46 " 80 "

Depth to Water Level: 90.22 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.61 ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 1.38 gal.

Total Well Depth: 92.34 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.40

Sample Field Filtered (must be 0.45 micron)? ☒ Yes ☐ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 10:00

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B46-004

Final Lab Analysis Completion Date: 05/07/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.



I.D. No. 100663

Monitoring Point No. MW-P2U

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	< 0.10	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	< 5	SM 4500-CO2 D
Calcium, Total*	252	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	27	EPA 300.0
Flouride	0.6	EPA 300.0
Iron (µg/l), Total	440	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	98.0	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	2660	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.48	EPA 300.0
pH (standard units), Field *	4.59	SM 4500 H+B
pH (standard units), Laboratory*	4.43	SM 4500-H+ B
Potassium, Total*	2.9	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	36.4	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1831	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1770	EPA 120.1
Sulfate*	1030	EPA 300.0
Total Alkalinity*	< 5	ASTM D 1067-06
Total Dissolved Solids	1660	SM 2540 C
Total Organic Carbon*	1.0	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	0.6	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4). Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-P2U

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.

I.D. No. 100663  
 Monitoring Point No. MW-P2U  
 Sample Date 04/22/15

**FORM 19**  
**ANNUAL WATER QUALITY ANALYSES**

- 1-A. **Metals (Enter all data in µg/l) If initial background analyses or four consecutive annual analyses show essentially identical (within 5%) dissolved and total analyses, dissolved analyses may not be required, subject to written DEP approval.**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Arsenic, Total		
Arsenic, Dissolved		
Barium, Total		
Barium, Dissolved		
Cadmium, Total		
Cadmium, Dissolved		
Chromium, Total	< 10	EPA 200.7
Chromium, Dissolved	< 10	EPA 200.7
Copper, Total		
Copper, Dissolved		
Lead, Total		
Lead, Dissolved		
Mercury, Total		
Mercury, Dissolved		
Selenium, Total		
Selenium, Dissolved		
Silver, Total		
Silver, Dissolved		
Zinc, Total		
Zinc, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		
, Total		
, Dissolved		

<sup>†</sup> Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form 19, reference the item number and identify the date prepared. The "date prepared/revised" on any attached sheets needs to match the "date prepared/revised" on this page.

General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-P2D1

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 54 " 60 "

Longitude: 79 ° 52 ' 49 " 00 "

Depth to Water Level: 91.72 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.61 ft.

Elevation of Water Level: 871.45 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 3.12 gal.

Total Well Depth: 96.50 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.30

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 09:40

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B28-004

Final Lab Analysis Completion Date: 04/27/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:  
Clear.

I.D. No. 100663

Monitoring Point No. MW-P2D1

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	< 0.10	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	258	SM 4500-CO2 D
Calcium, Total*	144	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	38	EPA 300.0
Flouride	0.2	EPA 300.0
Iron (µg/l), Total	< 50	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	47.3	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	< 10	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.61	EPA 300.0
pH (standard units), Field:*	6.70	SM 4500 H+B
pH (standard units), Laboratory*	7.04	SM 4500-H+ B
Potassium, Total*	3.6	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	41.5	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1080	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1060	EPA 120.1
Sulfate*	257	EPA 300.0
Total Alkalinity*	258	ASTM D 1067-06
Total Dissolved Solids	712	SM 2540 C
Total Organic Carbon*	1.3	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	0.3	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. MW-P2D1

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
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BUREAU OF WASTE MANAGEMENT

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**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: MW-P2D2

☒ Well ☐ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 15 ' 56 " 90 "

Longitude: 79 ° 52 ' 50 " 00 "

Depth to Water Level: 92.80 ft.

Measured from: ☐ Land Surface ☒ TOC

Casing Stick Up: 1.58 ft.

Elevation of Water Level: 870.37 ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: 3.79 gal.

Total Well Depth: 98.61 ft.

Sampling Method: ☒ Pumped ☐ Bailed ☐ Grab

Well Purged: ☒ Yes ☐ No

Well Volumes Purged: 0.20

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: 10:20

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B28-005

Final Lab Analysis Completion Date: 04/27/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear - Slight odor.

I.D. No. 100663

Monitoring Point No. MW-P2D2

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	< 0.10	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	254	SM 4500-CO2 D
Calcium, Total*	160	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	29	EPA 300.0
Flouride	0.2	EPA 300.0
Iron (µg/l), Total	1550	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	47.8	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	110	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	< 0.05	EPA 300.0
pH (standard units), Field *	6.69	SM 4500 H+B
pH (standard units), Laboratory*	7.13	SM 4500-H+ B
Potassium, Total*	6.0	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	44.7	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1218	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	1180	EPA 120.1
Sulfate*	350	EPA 300.0
Total Alkalinity*	254	ASTM D 1067-06
Total Dissolved Solids	832	SM 2540 C
Total Organic Carbon*	1.3	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	1.7	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.



I.D. No. 100663

Monitoring Point No. MW-P2D2

Sample Date 04/22/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
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**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: ML-1A

☐ Well ☐ Spring ☐ Stream ☒ Other

☐ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude:     °     '     "

Longitude:     °     '     "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☐ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate:      GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time:     

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1505019-002

Final Lab Analysis Completion Date: 05/01/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: Dry.



COMMONWEALTH OF PENNSYLVANIA  
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**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: ML-2A

☐ Well ☐ Spring ☐ Stream ☒ Other

☐ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: NA ° NA ' NA "

Longitude: NA ° NA ' NA "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☐ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/22/15

Sample Collection Time: \_\_\_\_\_

Sample Collector's Name: J. Russell / N. Trivelli

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1505019-003

Final Lab Analysis Completion Date: 05/01/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: Dry.

WASTE MANAGEMENT

KELLY RUN SANITATION, INC. LANDFILL  
Forward Township, Allegheny County

PADEP ID No. 100663

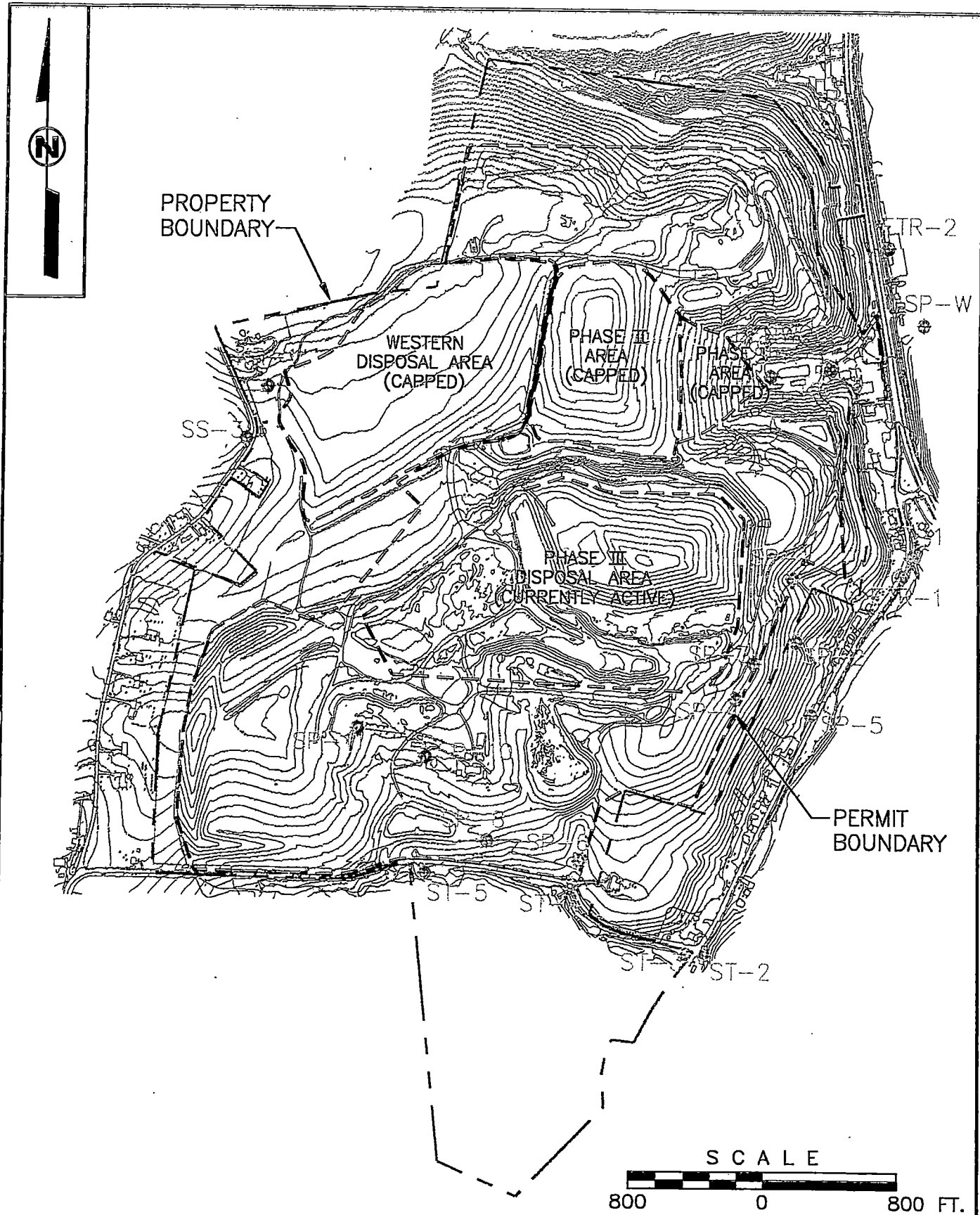
APPENDIX B

SECOND QUARTER 2015

SURFACE WATER FORM 19 QUARTERLY RESULTS  
AND  
SPRING FORM 19 QUARTERLY RESULTS

Submitted  
August 2015

G:\PROJECT\05\050558\DWG\050558A50.DWG (JGILLIGAN) - AUG 26, 2010 - 16:4



**Civil & Environmental Consultants, Inc.**

EXPORT, PA PITTSBURGH, PA

(724) 327-5200 • (412) 429-2324

Cincinnati, OH • Columbus, OH • Indianapolis, IN • Nashville, TN

SURFACE WATER MONITORING  
LOCATION MAP  
KELLY RUN LANDFILL  
PERMIT NO. 100663

DWN. BY: JHG

SCALE:

AS SHOWN

DATE:

08/19/05

PROJECT NO:

050558

FIGURE B-1



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: FTR-2

☐ Well ☐ Spring ☒ Stream ☐ Other

☒ Upgradient/Upstream ☐ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 15 ' 11 " 50 "

Longitude: 79 ° 52 ' 43 " 00 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☒ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:50

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B49-003

Final Lab Analysis Completion Date: 04/29/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_  
Clear.

I.D. No. 100663

Monitoring Point No. FTR-2

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	< 0.10	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	202	SM 4500-CO2 D
Calcium, Total*	90.5	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	58	EPA 300.0
Flouride	0.2	EPA 300.0
Iron (µg/l), Total	1250	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	30.3	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	110	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.51	EPA 300.0
pH (standard units), Field *	8.26	SM 4500 H+B
pH (standard units), Laboratory*	8.46	SM 4500-H+ B
Potassium, Total*	2.4	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	68.5	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	874	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	871	EPA 120.1
Sulfate*	150	EPA 300.0
Total Alkalinity*	208	ASTM D 1067-06
Total Dissolved Solids	522	SM 2540 C
Total Organic Carbon*	1.3	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	5.6	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. FTR-2

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.





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**SECTION A: SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B: FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: KR-2

☐ Well ☐ Spring ☒ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 15 ' 4 " 50 "

Longitude: 79 ° 53 ' 42 " 00 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☒ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 11:40

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B49-002

Final Lab Analysis Completion Date: 04/29/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:  
Clear.



COMMONWEALTH OF PENNSYLVANIA  
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**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: ST-2

☐ Well ☐ Spring ☒ Stream ☐ Other  
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 26 " 60 "

Longitude: 79 ° 52 ' 55 " 50 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☒ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:40

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B47-003

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.

I.D. No. 100663

Monitoring Point No. ST-2

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	< 0.10	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	196	SM 4500-CO2 D
Calcium, Total*	80.2	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	53	EPA 300.0
Flouride	0.1	EPA 300.0
Iron (µg/l), Total	210	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	24.1	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	20	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.52	EPA 300.0
pH (standard units), Field*	8.59	SM 4500 H+B
pH (standard units), Laboratory*	8.61	SM 4500-H+ B
Potassium, Total*	2.3	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	34.7	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	663	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	658	EPA 120.1
Sulfate*	53	EPA 300.0
Total Alkalinity*	204	ASTM D 1067-06
Total Dissolved Solids	398	SM 2540 C
Total Organic Carbon*	1.6	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	4.0	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. ST-2

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
05/12/2015

DEP USE ONLY

Date Received

**FORM 19**  
**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

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Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: ST-3

☐ Well ☐ Spring ☒ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 27 . 40 "

Longitude: 79 ° 52 ' 56 . 50 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☒ Grab

Well Purged: ☐ Yes ☒ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:35

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B47-002

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments:

Clear.

I.D. No. 100663

Monitoring Point No. ST-3

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

1-Q. Inorganics (Enter all data in mg/l except as noted)

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.32	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	180	SM 4500-CO2 D
Calcium, Total*	77.9	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	70	EPA 300.0
Flouride	0.1	EPA 300.0
Iron (µg/l), Total	850	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	30.2	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	40	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.80	EPA 300.0
pH (standard units), Field *	8.31	SM 4500 H+B
pH (standard units), Laboratory*	8.49	SM 4500-H+ B
Potassium, Total*	2.4	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	51.4	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	773	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	760	EPA 120.1
Sulfate*	97	EPA 300.0
Total Alkalinity*	185	ASTM D 1067-06
Total Dissolved Solids	480	SM 2540 C
Total Organic Carbon*	1.5	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	18.8	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. ST-3

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1,-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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**MUNICIPAL WASTE LANDFILL**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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General References: Section 273.284

Federal Regulations, Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A: SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B: FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: ST-5

☐ Well ☐ Spring ☒ Stream ☐ Other  
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 33 . 00 "

Longitude: 79 ° 53 ' 16 . 70 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☒ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:25

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B47-001

Final Lab Analysis Completion Date: 05/06/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.



I.D. No. 100663

Monitoring Point No. ST-5

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	0.17	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	186	SM 4500-CO <sub>2</sub> D
Calcium, Total*	87.1	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	94	EPA 300.0
Flouride	0.1	EPA 300.0
Iron (µg/l), Total	460	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	27.0	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	30	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	0.90	EPA 300.0
pH (standard units), Field *	7.64	SM 4500 H+B
pH (standard units), Laboratory*	8.59	SM 4500-H+ B
Potassium, Total*	2.0	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	53.1	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	822	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	830	EPA 120.1
Sulfate*	85	EPA 300.0
Total Alkalinity*	193	ASTM D 1067-06
Total Dissolved Solids	472	SM 2540 C
Total Organic Carbon*	1.3	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	7.7	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. ST-5

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE <sup>†</sup>	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised  
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Date Received

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**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

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Federal Regulations; Subtitle D: 258.54 and Appendix I to Part 258.

**SECTION A. SITE IDENTIFIER**

Applicant/permittee: Kelly Run Sanitation

Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: SP-3

☐ Well ☒ Spring ☐ Stream ☐ Other

☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 46 . 00 "

Longitude: 79 ° 52 ' 50 . 00 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☒ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: 10:10

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1504B49-001

Final Lab Analysis Completion Date: 04/29/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: \_\_\_\_\_

Clear.

I.D. No. 100663

Monitoring Point No. SP-3

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**ANALYTES**

**1-Q. Inorganics (Enter all data in mg/l except as noted)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Ammonia-Nitrogen*	< 0.10	EPA 350.1
Bicarbonate (as CaCO <sub>3</sub> )*	352	SM 4500-CO2 D
Calcium, Total*	113	EPA 200.7
Calcium, Dissolved**		
Chemical Oxygen Demand*	< 10	HACH 8000
Chloride*	28	EPA 300.0
Flouride	< 0.1	EPA 300.0
Iron (µg/l), Total	70	EPA 200.7
Iron (µg/l), Dissolved**		
Magnesium, Total*	78.4	EPA 200.7
Magnesium, Dissolved**		
Manganese (µg/l), Total	80	EPA 200.7
Manganese (µg/l), Dissolved**		
Nitrate-Nitrogen	1.46	EPA 300.0
pH (standard units), Field *	6.99	SM 4500 H+B
pH (standard units), Laboratory*	8.37	SM 4500-H+ B
Potassium, Total*	3.8	EPA 200.7
Potassium, Dissolved**		
Sodium, Total*	21.3	EPA 200.7
Sodium, Dissolved**		
Specific Conductance (µmhos/cm), Field*	1061	EPA 120.1
Specific Conductance (µmhos/cm), Laboratory*	970	EPA 120.1
Sulfate*	154	EPA 300.0
Total Alkalinity*	360	ASTM D 1067-06
Total Dissolved Solids	654	SM 2540 C
Total Organic Carbon*	1.3	SM 5310 C
Total Phenolics (µg/l)	< 20.0	EPA 420.1
Turbidity (NTU)	1.8	EPA 180.1

\* Indicator Analyte - For comparison with detection zone analytes.

† Please indicate detection limit if analyte is not detected.

\*\* Total and dissolved analysis required only in conjunction with additional annual metals sampling (see page 4).  
 Remaining quarterly samples only require total metals analysis.

I.D. No. 100663

Monitoring Point No. SP-3

Sample Date 04/21/15

**FORM 19**  
**QUARTERLY AND ANNUAL WATER QUALITY ANALYSES**

**2-Q. Organics (Enter all data in µg/l)**

ANALYTE	VALUE†	ANALYSIS METHOD NUMBER
Benzene	< 5.0	EPA 8260
1,2-Dibromoethane	< 5.0	EPA 8260
1,1-Dichloroethane	< 5.0	EPA 8260
1,1-Dichloroethene	< 5.0	EPA 8260
1,2-Dichloroethane	< 5.0	EPA 8260
Cis-1,2-Dichloroethene	< 5.0	EPA 8260
Trans-1,2-Dichloroethene	< 5.0	EPA 8260
Ethyl Benzene	< 5.0	EPA 8260
Methylene chloride	< 5.0	EPA 8260
Tetrachloroethene	< 5.0	EPA 8260
Toluene	< 5.0	EPA 8260
1,1,1-Trichloroethane	< 5.0	EPA 8260
Trichloroethene	< 5.0	EPA 8260
Vinyl chloride	< 2.0	EPA 8260
Xylene	< 5.0	EPA 8260

† Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WASTE MANAGEMENT

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Site Name: Kelly Run Sanitation

Facility ID (as issued by DEP): 100663

**SECTION B. FACILITY INFORMATION**

Monitoring wells must be designed and constructed in accordance with Department standards. **INDICATE THE LATITUDE AND LONGITUDE TO THE NEAREST ONE TENTH OF A SECOND (DD° MM' SS.S").**

Monitoring Point Number: SP-4

☐ Well ☒ Spring ☐ Stream ☐ Other  
☐ Upgradient/Upstream ☒ Downgradient/Downstream

Location: County Allegheny

Municipality: Township of Forward

Sampling Point: Latitude: 40 ° 14 ' 43 . 50 "

Longitude: 79 ° 52 ' 53 . 00 "

Depth to Water Level: NA ft.

Measured from: ☐ Land Surface ☐ TOC

Casing Stick Up: NA ft.

Elevation of Water Level: NA ft./MSL

Sampling Depth: NA ft.

Volume of Water Column: NA gal.

Total Well Depth: NA ft.

Sampling Method: ☐ Pumped ☐ Bailed ☐ Grab

Well Purged: ☐ Yes ☐ No

Well Volumes Purged: NA

Sample Field Filtered (must be 0.45 micron)? ☐ Yes ☒ No

Spring Flow Rate: \_\_\_\_\_ GPM

Sample Date (mm/dd/yy): 04/21/15

Sample Collection Time: \_\_\_\_\_

Sample Collector's Name: Cody Salmon

Sample Collector's Affiliation: Beran Environmental

Laboratory(ies) Performing Analysis: Geochemical Testing

Were any holding times exceeded? ☐ Yes ☒ No. If yes, please explain in comments field.

Lab Certification Number(s): 56-00306

Lab Sample Number(s): G1505019-001

Final Lab Analysis Completion Date: 05/01/2015

Name/Affiliation of Person who Filled out Form Geochemical Testing

Comments: Dry.

WASTE MANAGEMENT

KELLY RUN SANITATION, INC. LANDFILL  
Forward Township, Allegheny County

PADEP ID No. 100663

APPENDIX C

SECOND QUARTER 2015

QUALITY ASSURANCE/QUALITY CONTROL  
FIELD PARAMETERS  
CHAINS OF CUSTODY

Submitted  
August 2015